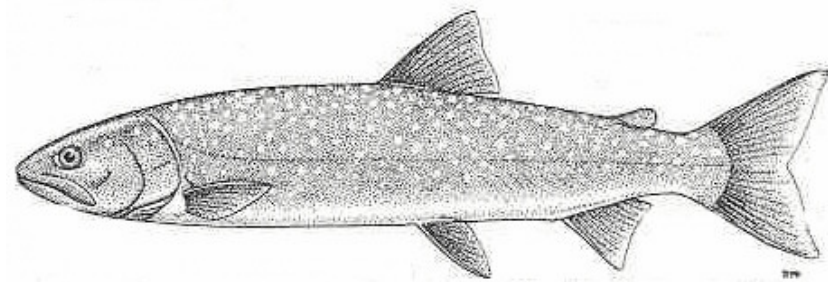


DRAFT
STRATEGY
for
PROTECTION and IMPROVEMENT
of
NATIVE SALMONID HABITAT
in the
Pend Oreille Watershed, Washington
Water Resource Inventory Area 62



Pend Oreille Lead Entity
Pend Oreille Conservation District
PO Box 280
Newport, Washington 99156-0280
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IN COOPERATION WITH THE INITIATING GOVERNMENTS

Pend Oreille County
Kalispel Tribe
City of Newport

Funded by: Washington Department of Fish and Wildlife

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ACKNOWLEDGMENTS

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EXECUTIVE SUMMARY

The Pend Oreille Lead Entity (POLE) was created under the Salmon Recovery Act (Act) in June 2000 for Water Resource Inventory Area (WRIA 62) in northeastern Washington. The Lead Entity consists of a Technical Advisory Group (TAG) and a Citizens Advisory Group (CAG) and is administered by the Pend Oreille Conservation District under contract with the Washington Department of Fish and Wildlife. The Act provides an annual opportunity for the Lead Entity to submit a list of salmonid habitat protection and improvement projects to the Salmon Recovery Funding Board (SRFB) for funding consideration. The SRFB is authorized by the Washington Legislature to fund projects that are targeted at salmonid recovery activities and projects statewide.

This strategy addresses protection and improvement of native salmonid habitat in WRIA 62 and provides a framework for developing an annual project list for submittal to the SRFB. The POLE vision for salmonid recovery in WRIA 62 is: “A healthy watershed that provides for the recovery of native salmonids, while also providing ecological, cultural, recreational, and socio-economic benefits”. Several short- and long-term goals have been developed to help achieve the vision.

WRIA 62 DESCRIPTION

WRIA 62 is drained by the Pend Oreille River, which is the second largest river in Washington. The Pend Oreille River flows for 155 miles from its headwaters at Lake Pend Oreille, Idaho to the confluence with the Columbia River in Canada. Several large tributaries drain to the Pend Oreille River including Sullivan, Cedar, LeClerc, Tacoma, Ruby and Calispell creeks. WRIA 62 also includes a small portion of the South Fork Salmo River and the headwaters of several tributaries which drain to the Priest River system in Idaho.

PRIORITY, STATUS, AND DISTRIBUTION OF SALMONID SPECIES

Salmonids native to WRIA 62 include Chinook salmon, steelhead trout, bull trout, westslope cutthroat trout, mountain whitefish and pygmy whitefish. Of these, Chinook salmon and steelhead have been extirpated, bull trout is listed as “threatened” under the Endangered Species Act (ESA), westslope cutthroat trout is designated a “species of concern” by the U.S. Fish and Wildlife Service, and pygmy whitefish is a Washington State “sensitive” species. The TAG and CAG have chosen bull trout, westslope cutthroat trout, and pygmy whitefish as priority species for recovery in WRIA 62. The primary focus of this strategy is on recovery of bull trout due to its ESA-listed status.

HABITAT LIMITING FACTORS

It is unknown which habitat attribute or combination of attributes are most limiting bull trout in WRIA 62 (WCC 2003). However, several factors are known to be significant in the decline of bull trout populations in WRIA 62: habitat degradation on the mainstem and within tributaries; human-made fish passage barriers into tributaries of the Pend Oreille River; non-native species introduction and management; and the construction and operation of three hydroelectric facilities on the mainstream Pend Oreille River (i.e., Boundary, Box Canyon, and Albeni Falls dams), which were constructed without fish passage facilities (WCC 2003).

In general, habitat limiting factors affecting bull trout and other native salmonids in WRIA 62 can be summarized as:

- degraded riparian habitat
- embedded substrate/sedimentation
- lack of channel complexity
- degraded pool habitat
- altered channel morphology
- stream channel instability
- elevated stream temperature and other water quality problems
- barriers to fish passage
- development pressure
- high road density
- dewatering
- historic harvest
- non-native species competition

PRIORITY AREAS AND ACTIONS

The TAG used a two-step approach to prioritize and rank geographic areas within WRIA 62 for salmonid protection and habitat improvement actions. The prioritization process resulted in 11 of the 38 subbasins in WRIA 62 being designed as “High” priority subbasins, 4 as “medium” priority, and the remainder as “low” priority based on recent documentation of ESA-listed species, habitat suitability, and presence of natural barriers to fish passage. “High” and “Medium” priority subbasin were then ranked using seven additional criteria including habitat utilization, restoration potential, and amount of public land within subbasin (see Appendix B for details).

Priority actions were determined by the TAG for each of the “High” and “Medium” priority subbasins using information contained in the Bull Trout Habitat Limiting Factors Report for WRIA 62 (WCC 2003) and professional judgment. In summary, major actions necessary to protect and improve bull trout and other native salmonid populations in WRIA 62 may include:

- Restoring fish passage at all major barriers (i.e., dams, dikes, weirs, etc.) and culverts crossings
- Removing non-native fish
- Restoring habitat complexity (instream and riparian)
- Relocating, obliterating, or reconstructing road segments out of riparian areas
- Restoring floodplain connectivity
- Identifying and prioritizing fish passage barriers for removal
- Identifying and addressing road maintenance problems

COMMUNITY INTERESTS

Community interests and support is assessed and promoted on two levels. The first and most important is project level landowner support, which is assessed on a project by project basis when sponsors are available and projects are a priority within the subbasin. The second is general community support of priority actions and areas. To assess this element, Citizen Advisory Group members identified a level of community support present for each priority action of each subbasin suggested by the TAG. The level of community support was based on the effects each action may have on a number of socioeconomic concerns including but not limited to:

- Local industry and landowner ability to avoid undue economic hardship by sustaining adequate use of natural resources
- Continued outdoor recreation, hunting and fishing opportunities
- Continued resource-based economic activity (logging, farming and mining)
- Retaining the rural character of the land
- Preservation of flood control
- Further restricting access to public lands

The minimum amount of community support required to successfully implement high priority projects is landowner support. Ranking of community support at this time reflects the mass indifference or lack of knowledge with regard to native salmonid habitat improvement activities proposed in this strategy. General community support for projects WRIA wide is limited and focuses on:

- Assessments
- Barrier/culvert replacement
- Bank stabilization projects
- Actions improving public lands
- Easements to compensate for agriculture lands lost to conservation practices

Any priority project with landowner support as well as actions identified as having “high or moderate” community support are actively promoted to project sponsors. When sponsored these projects are prioritized by the CAG, both on their current level of community support and their ability to develop support for the salmonid recovery process in the future (see Appendix D).

Priority actions and areas with a low level of community and landowner support include:

- Acquisition of private land if removed from the county tax base
- Removal of non-native fish species in subbasins supporting a sport fishery
- Actions proposed in the lower Calispell subbasin; benefits of these actions in a primarily agricultural area protected from flooding of the Pend Oreille River by a diking system are in question by many local community members and landowners
- Road removal, abandonment or obliteration reducing access to public land.

The strategy for increasing the level of actions identified as having lower community support include:

1. Continuing adult and youth education for high priority activities in high priority areas.
 - a. Actions with low community support will be prioritized for support building activities based on its subbasin priority, the rank of action within a priority subbasin, and the ability of the activity to achieve long and short term goals of the strategy.
 - b. Prioritized low support actions will be promoted through continual educational events including guest speakers at local public and Lead Entity CAG meetings

and field trips for project sponsors, landowners and citizens to past project sites of similar actions or subbasins.

2. The Lead Entity, when ever possible, in areas currently enjoying higher levels of community support will actively promote sponsorship of habitat improvement actions which are similar to those priority actions in areas with low community support including:
 - a. Pilot studies and priority actions located in adjacent subbasins which have similar limiting factors
 - b. Priority actions on public lands (i.e. with landowner support) within a low community support, high priority subbasin addressing limiting factors similar to those present on the privately owned reaches.

To achieve a higher level of understanding of community support and concerns regarding priority actions in priority areas, the CAG will produce a survey for water front landowners with questions relating specifically to actions proposed in their subbasin. Results of this survey will refine the list of educational events and activities as well as identify additional areas of community support for priority habitat improvement activities.

OVERALL APPROACH TO GUIDE PROJECT PRIORITIES

Priority subbasin ranking when combined with subbasin specific priority actions will focus the POLE in developing and soliciting salmonid protection and improvement projects for submittal to the Salmon Recovery Funding Board (SRFB). Any priority action with landowner support will be accepted for submission to the SRFB. The final project ranking criteria ensures that actions with equal biological benefit and certainty ratings which are highly visible, publicly supported or have the potential to increase public support for the recovery process will be ranked higher on the habitat projects list.

The success of this strategy in achieving native salmonid habitat recovery depends on the Lead Entity's ability to continually fund high quality projects shown, through project monitoring, to have a positive effect on fish habitat without negatively effecting property owners or public land use. This will lead to higher level of public support for both salmonid habitat recovery and the proposed actions within this strategy.

VISION AND GOALS

VISION STATEMENT: We envision a healthy watershed that provides for the recovery of native salmonids, while also providing ecological, cultural, recreational, and socio-economic benefits.

Short-term goals important to achieving the vision include:

- Stakeholders working together to identify all possible voluntary habitat improvement projects
- Through public outreach, educate the public and potential project stakeholders on the importance of salmonid recovery and watershed issues.
- Improve habitat and restore complete connectivity on a subbasin by subbasin level starting with those subbasin that will provide the most suitable habitat for recolonization of native salmonids for the least amount of money and without negatively impacting social or economic status of local citizens.
- Recommend adoption of public and private road building and maintenance standards by agencies that will, when implemented, help minimize negative impacts on fish habitat.

Long-term goals important to achieving the vision include:

- Bring more stakeholders together to continue to identify voluntary habitat improvement projects.
- Use results from monitoring past projects to increase the effectiveness of future projects.
- Enforce public and private road-building and maintenance standards and practices to minimize negative impacts on fish habitat.
- Manage our National Forest lands so as to minimize negative impacts to fish habitat.
- Achieve de-listing of Endangered Species Act (ESA) listed species in selected tributaries of Water Resource Inventory Area (WRIA) 62.
- Protect, enhance, and restore native salmonid populations to maintain stable, viable levels, to ensure long-term, self-sustaining persistence, and to provide ecological, cultural, economic, and sociological benefits.
- Restore, protect, and maintain spawning and rearing habitat in tributary streams to improve survival of native salmonids.
- Operate dams and reservoirs to minimize negative impacts to native salmonids.
- Conserve genetic diversity of native fish populations and provide opportunity for genetic exchange among local populations.
- Improve conditions for native salmonids by reducing competition with brook trout and other non-native fish.

INTRODUCTION

Background

Currently, 16 stocks of salmon, trout, and char (salmonids) are listed as threatened or endangered under the Endangered Species Act (ESA) in Washington State. To address this issue, the state legislature passed the Salmon Recovery Act (Chapter 77.85 RCW) in 1998, which provides for the creation of Lead Entities (Chapter 77.85.050 RCW) to coordinate salmonid recovery efforts at a local level. Lead Entities are jointly appointed by the counties, tribes, and municipalities within the Lead Entity area. The Washington Department of Fish and Wildlife (WDFW) administers funds for expenses associated with operation and maintenance of Lead Entities. With technical assistance from WDFW, the Lead Entities assemble, facilitate, and administer a local, citizen committee of representative habitat interests; develop a strategy for habitat protection and improvement; solicit project applications for salmonid habitat improvement and protection projects; create a prioritized list of habitat improvement/protection projects; and, create a work schedule for project completion. The prioritized habitat project list is submitted to the state's Salmon Recovery Funding Board (SRFB). The SRFB supports local partnerships by funding habitat protection and improvement projects that are proposed by local groups through Lead Entities. The mission of the SRFB (2001) is to "support salmonid recovery by funding habitat protection and restoration projects and related programs and activities that produce sustainable and measurable benefits to fish and their habitats".

Pend Oreille Lead Entity

As part of the major statewide effort to recover declining salmonid stocks, the Pend Oreille Lead Entity (POLE) was created in June 2000 under the Salmon Recovery Act. The Pend Oreille Conservation District (POCD) was appointed Lead Entity for Water Resource Inventory Area (WRIA) 62 through the joint support of the Kalispel Tribe, Pend Oreille County, and the City of Newport. The POLE consists of a Technical Advisory Group (TAG) and a Citizens Advisory Group (CAG) and is administered by the POCD under contract with the Washington Department of Fish and Wildlife. The Salmon Recovery Act provides an annual opportunity for the Lead Entity to submit a list of salmonid habitat protection and improvement projects to the Salmon Recovery Funding Board (SRFB) for funding consideration. The SRFB is authorized by the Washington Legislature to fund projects that are targeted at salmonid recovery activities and projects statewide. Since 1999, the SRFB has funded five projects in WRIA 62 with a total value of over \$971,000. For a summary of these projects see Appendix A.

Purpose of strategy

This strategy addresses protection and improvement of native salmonid habitat in WRIA 62 and provides a framework for developing an annual project list for submittal to the SRFB. This document was created to serve as a guiding strategy that utilizes the best available science, local citizen's knowledge and technical expertise to identify and prioritize actions necessary for improvement of native salmonid habitat and populations in WRIA 62. This document serves the following purposes:

- 1) Help potential project sponsors select projects that clearly fit into a collective, unified recovery strategy;
- 2) Aid in the project prioritization process; and,

- 3) Facilitate coordination and cooperation between local natural resource and fisheries managers concerning specific projects, efforts, and strategies.
- 4) Identify areas and topics of community concern and take action to improve community acceptance of salmonid recovery activities in WRIA 62.

This document is not intended to be an all encompassing, final strategy and implementation plan for salmonid recovery in WRIA 62. There are many factors that have and are contributing to the decline of native salmonids in the watershed which are beyond the scope of the Pend Oreille Lead Entity and its mandate under the Salmon Recovery Act. However, this document will continually change as habitat protection and improvement projects are completed, new projects are developed, and knowledge of the fisheries resources and habitat improves in both quality and quantity.

WRIA 62 DESCRIPTION

This strategy addresses WRIA 62, which is located in the northeastern corner of Washington State, encompassing 1,242 acres of the Pend Oreille and Priest River subbasins. WRIA 62 is bordered by Canada to the north, Idaho to the east, and the Chewelah Mountains to the west (Figure A). It encompasses the Pend Oreille River and its tributaries between the Canadian border and the Idaho border. The Pend Oreille River is the second largest river in Washington and flows 155 miles from its headwaters at Lake Pend Oreille to the confluence with the Columbia River in Canada. Many tributaries feed into the Pend Oreille River. The largest tributary drainage within WRIA 62 is Sullivan Creek, which drains an area of approximately 142 square miles (Dames and Moore 1995). Other significant tributaries include Cedar, LeClerc, Tacoma, Ruby, and Calispell creeks. WRIA 62 also includes a small portion of the South Fork Salmo River, where it dips down into Washington State. The South Fork Salmo River is a tributary to the Salmo River which flows into the Pend Oreille River in Canada. Some headwater portions of tributaries which drain to the Priest River system in Idaho are also captured in WRIA 62. The headwaters of tributaries contained within WRIA 62 that drain into Idaho waters include: Gold, Hughes Fork, Jackson, Bench, Granite, Kalispell, Lamb and Binarch creeks and the Upper and Lower West Branch of Priest River (WCC 2003).

WRIA 62 is located within the “Intermountain Province”, a Northwest Power and Conservation Council designation for the area draining to the Columbia River upstream of Chief Joseph Dam. Under U.S. Fish and Wildlife Service (USFWS) bull trout recovery planning, WRIA 62 falls into two different “recovery units”: the Northeast Washington Recovery Unit and the Clark Fork Recovery Unit.

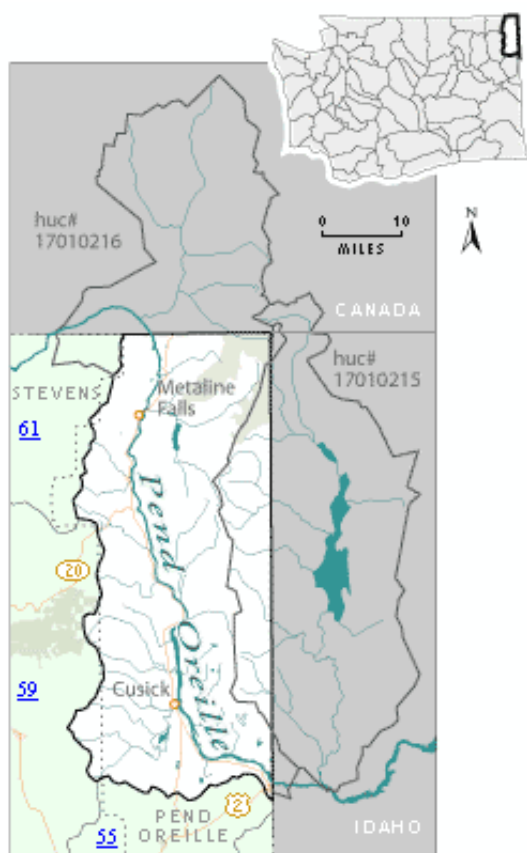


Figure A
Location of Water Resource Inventory Area
(WRIA) 62

PRIORITY, STATUS, AND DISTRIBUTION OF SALMONID SPECIES

Salmonids native to WRIA 62 include Chinook salmon (*Oncorhynchus tshawytscha*), steelhead trout (*O. mykiss*), bull trout (*Salvelinus confluentus*), westslope cutthroat trout (*O. clarki*), mountain whitefish (*Prosopium williamsoni*), and pygmy whitefish (*Prosopium coulteri*). Chinook salmon and steelhead trout utilized the lower reaches of the Pend Oreille River downstream of Z-Canyon/Metaline Falls (WCC 2003). These species were extirpated from the WRIA upon completion of Grand Coulee Dam in 1939, which blocked migration of anadromous salmonids to the region. Kokanee salmon (*O. nerka*) also occur in the watershed, but it is not known if they were introduced to the system or are native. On-going genetic analysis of this stock will help to resolve the issue (T. Shuhda, USFS, pers. comm. 2004). Several introduced, non-native salmonids are also found in the watershed including eastern brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), and rainbow trout (*O. mykiss*).

PRIORITY SALMONID SPECIES

Native salmonid species in decline in WRIA 62 include bull trout, which was listed as “Threatened” under ESA in June 1998; westslope cutthroat trout, which is considered a “Species of Concern” by the U.S. Fish and Wildlife Service (USFWS); and, pygmy whitefish, a Washington State “Sensitive” species.

The technical (TAG) and citizens advisory groups (CAG) for the Pend Oreille Lead Entity have chosen these three species as priority for recovery in WRIA 62. The primary focus of this strategy is on bull trout, due to its ESA-listed status.

STATUS AND DISTRIBUTION OF PRIORITY SPECIES

The status and population viability characteristics (PVC; i.e., abundance, productivity, genetic diversity, and spatial distribution) of each priority species are described below.

Bull Trout

Bull trout were listed as “Threatened” under ESA on June 10, 1998. The Bull Trout and Dolly Varden Appendix to the Washington State Salmoind Stock Inventory (SaSI, WDFW 1998) identified the Pend Oreille bull trout stock as a distinct stock due to their geographic distribution, but listed the status of the stock as “Unknown”.

Bull trout were historically abundant in the Pend Oreille River (Gilbert and Evermann 1895; WCC 2003). An adfluvial downstream migration pattern is believed to have occurred in the Pend Oreille/Priest River basin in Washington and Idaho. Adult bull trout would migrate out of Lake Pend Oreille, Idaho and then into tributary streams in WRIA 62 to spawn, with the progeny eventually returning to the lake (USFWS 2002). This migration pattern was, however, eliminated with the construction of Albeni Falls Dam in 1952 just upstream of the Idaho-Washington state-line (USFWS 2002).

Currently, the abundance of bull trout is very low in the Pend Oreille watershed (USFWS 2002, WCC 2003). Bull trout observations in WRIA 62 in the mainstem Pend Oreille River and its

tributaries are infrequent and little life history information is known. Bull trout productivity is not well understood, but is also believed to be low. Bull trout populations still exist in those WRIA 62 tributaries which are part of the Priest River drainage and in the South Fork of the Salmo River (WCC 2003). However, documented bull trout reproduction has been declining in recent years in the Priest River drainage (M. Fairchild, USFS, pers. comm. 2004). Bull trout reproduction has been documented in a few WRIA 62 tributaries including South Fork Salmo River (Baxter 2004), LeClerc Creek (T. Andersen, KNRD, pers. comm., 2002; Plum Creek 1993 field notes), Granite Creek, and Hughes Fork (Irving 1987). Diversity of bull trout in the Pend Oreille watershed is not well understood, but believed to be low consisting of only adfluvial stocks. It is not known if resident stocks are currently present in tributaries to the Pend Oreille River (C. Vail, WDFW, pers. comm. 2004), but they are known to be absent from the Priest River drainage (M. Fairchild, USFS, pers. comm. 2004). Current bull trout distribution within the Pend Oreille River drainage is limited, despite extensive sampling efforts since 1988 (Barber et al. 1990; Ashe et al. 1991; Bennet and Liter 1991, R2 Resource Consultants 1998; DE&S 2001; KNRD and WDFW 1998; KNRD 1999, 2000; Andersen 2001a, 2001b). With the exception of known reproducing populations noted above, primarily only observations of individual fish have been documented in recent years (WCC 2003). However, in 2003, eleven bull trout were observed and/or captured in the tailrace of Albeni Falls Dam (Geist 2003).

Figure B shows the current known distribution of bull trout and bull trout habitat in WRIA 62 (based on WCC 2003).

Several factors are significant to the decline of bull trout populations in the Pend Oreille River in WRIA 62: habitat degradation on the mainstem and within the tributaries; human-made fish passage barriers into tributaries to the Pend Oreille River; exotic fish species introductions and management; and, the construction and operation of three hydroelectric facilities (Boundary, Box Canyon, and Albeni Falls dams) on the mainstem Pend Oreille River (WCC 2003). Human-caused habitat degradation associated with forest management practices, fire, flood control, livestock grazing, road construction, and land use practices associated with agriculture and residential development have also impacted bull trout in the WRIA (WCC 2003).

Westslope Cutthroat Trout

Westslope cutthroat trout is considered to be a “Species of Concern” by the USFWS. In 1997, the westslope cutthroat trout was petitioned for listing under ESA as a threatened species. In 1999 and 2003, the USFWS determined that listing was not warranted. The westslope cutthroat trout is considered to be a “Sensitive Species” by the Colville and Idaho Panhandle National Forests.

Historically, westslope cutthroat trout were abundant in the Pend Oreille River basin (Wydoski and Whitney 2003) and both fluvial and resident forms were believed to be present (USFWS 1999).

Currently, resident westslope cutthroat trout are found in numerous WRIA 62 tributary streams and adfluvial populations are found in the Sullivan subbasin (Sullivan Lake/Harvey Creek) and those subbasins which drain to Priest Lake (i.e. Hughes Fork, Kalispell, Granite). Abundance is largely unknown (C. Vail, WDFW, pers comm. 2004), but appears to be dependent upon quality

and quantity of habitat and competition from other species (T. Shuhda, USFS, pers. comm. 2004; M. Fairchild, USFS, pers. comm. 2004). In four WRIA 62 streams surveyed in 1995, westslope cutthroat trout abundance ranged from 5.9-40.1 trout/100 m² (KNRD and WDFW 1997). Productivity is unknown (C. Vail, WDFW, pers. comm. 2004). Diversity has been reduced from historic levels due to the loss of the fluvial form of cutthroat trout, which are no longer believed to be present in the watershed (C. Vail, WDFW, pers. comm. 2004). Fluvial stocks apparently could not adapt to a adfluvial life history upon construction of dams on the mainstem Pend Oreille River (Scholz 2000 in Wydoski and Whitney 2003). Genetic analysis of resident cutthroat trout populations in WRIA 62 has shown that several tributaries support genetically distinct populations of westslope cutthroat trout (Shaklee and Young 2000). However diversity is being limited in some subbasins due to introgression with non-native rainbow trout (M. Fairchild, USFS, pers. comm. 2004).

Figure C shows the current known general distribution of westslope cutthroat trout in WRIA 62. This map is based on most recent WDFW, USFS, and KNRD data, but may not reflect actual distribution as the entire watershed has not yet been surveyed. It is important to note that westslope cutthroat trout are generally more abundant in the upper reaches of WRIA subbasins than the lower reaches due to competition with non-native eastern brook trout.

Factors which have contributed to the decline of westslope cutthroat trout include conversion of the Pend Oreille River from a riverine to a reservoir environment (Wydoski and Whitney 2003) through the construction and operation of three hydroelectric facilities (T. Shuhda, USFS, pers. comm. 2004), displacement from streams by non-native salmoinds (T. Andersen, KNRD, pers. comm. 2004), human-made fish passage barriers, and habitat degradation (Wydoski and Whitney 2003) associated with forest management practices, fire, flood control, livestock grazing, road construction, and agriculture (T. Shuhda, USFS, pers. comm. 2004).

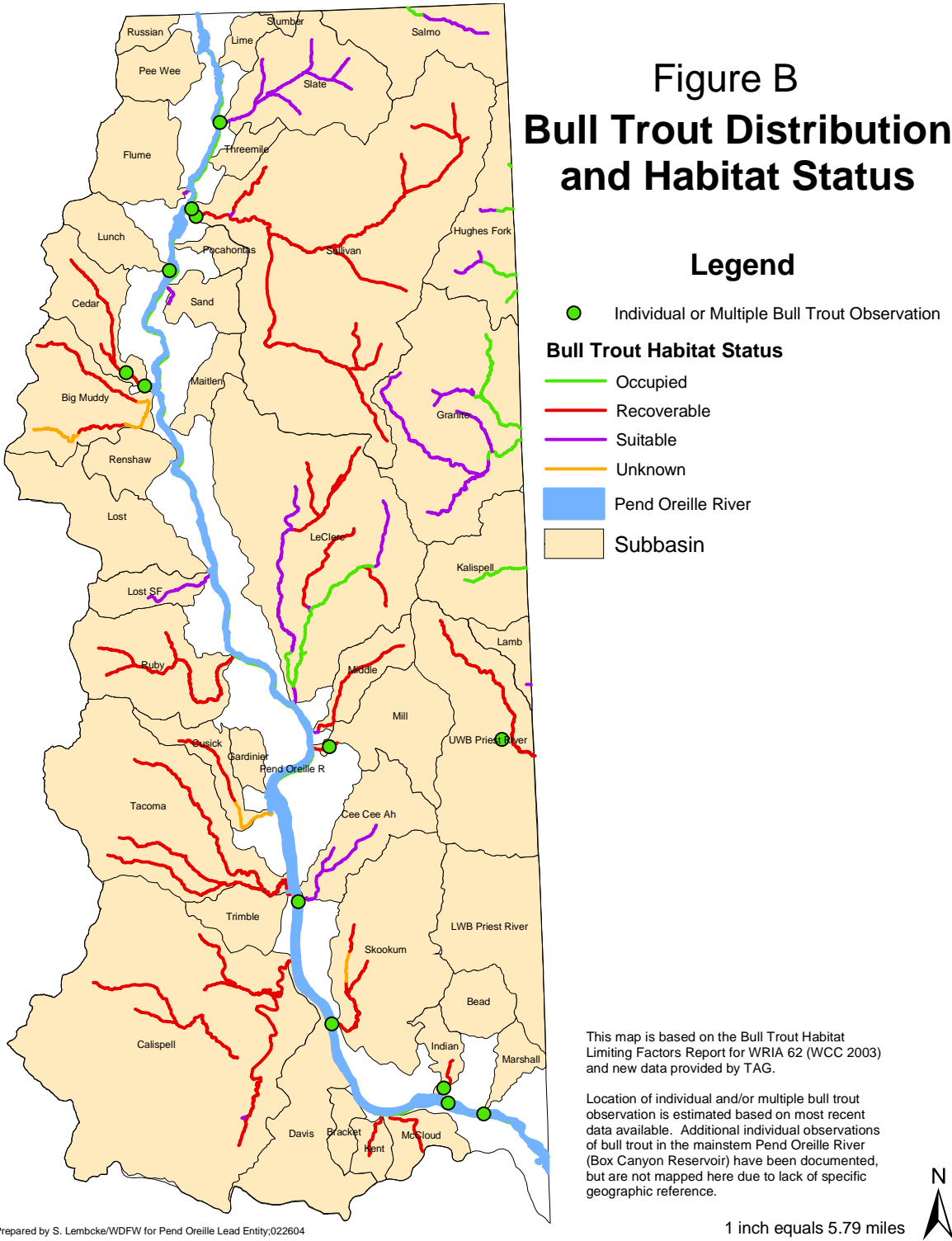
Pygmy Whitefish

Pygmy whitefish were classified as a “Sensitive” species in Washington State in 1998. Historically, pygmy whitefish were found in 15 lakes in Washington, including three in WRIA 62 - Bead, Marshall, and Sullivan (Hallock and Mongillo 1998). Currently, pygmy whitefish are found in just nine Washington lakes, including two in WRIA 62 (Sullivan and Bead).

The abundance and productivity of pygmy whitefish in WRIA 62 lakes is unknown (Hallock and Mongillo 1998), however a currently on-going study of Sullivan Lake by Eastern Washington University may help determine abundance at this location (T. Shuhda, USFS, pers. comm. 2004). The diversity of WRIA 62 populations has been reduced from historic as they are now found in only two of three lakes were they were historically present (Curt Vail, WDFW, pers. comm. 2004). The future of pygmy whitefish populations is dependent on maintenance of good water quality, spawning habitat, and prevention of predator introductions (Hallock and Mongillo 1998) into Sullivan and Bead lakes

Figure D shows the current known distribution of pygmy whitefish in WRIA 62 (based on Hallock and Mongillo 1998).

Figure B Bull Trout Distribution and Habitat Status



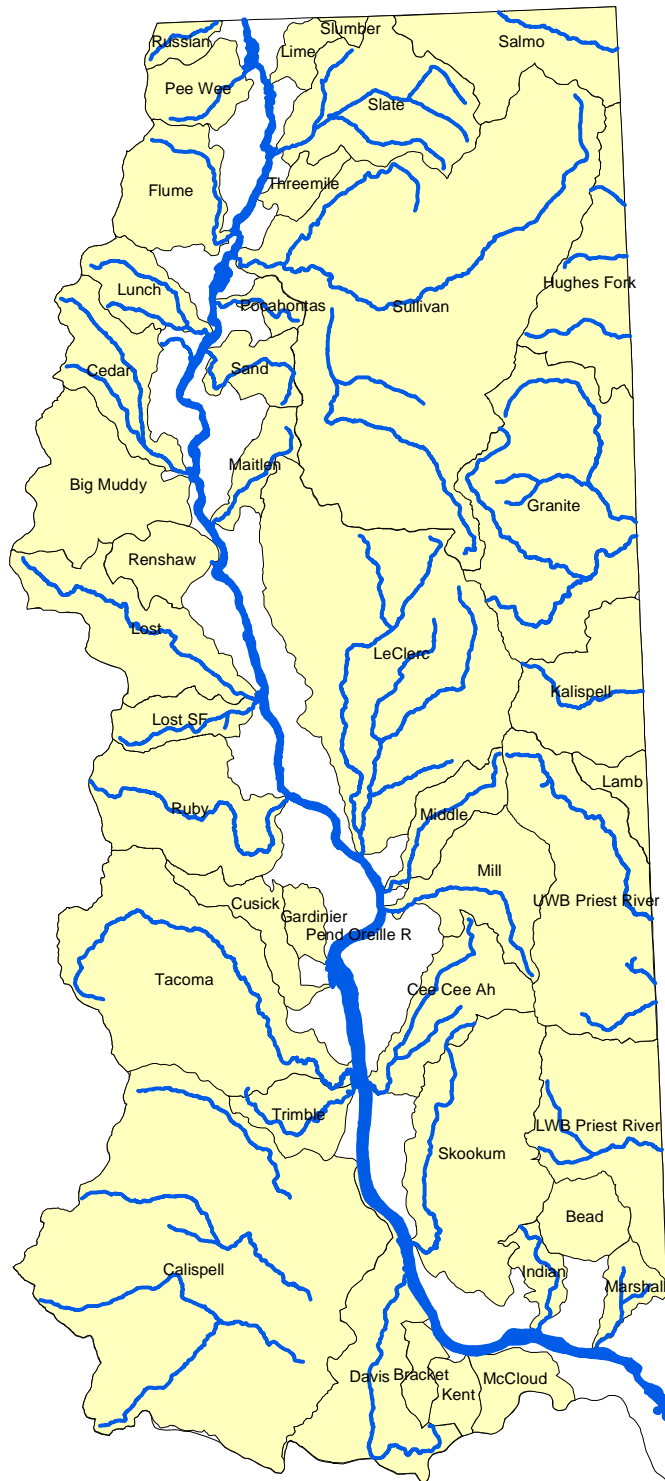


Figure C
**Westslope Cutthroat
 Trout
 Distribution**

Legend

- Subbasin
- Cutthroat Trout Distribution

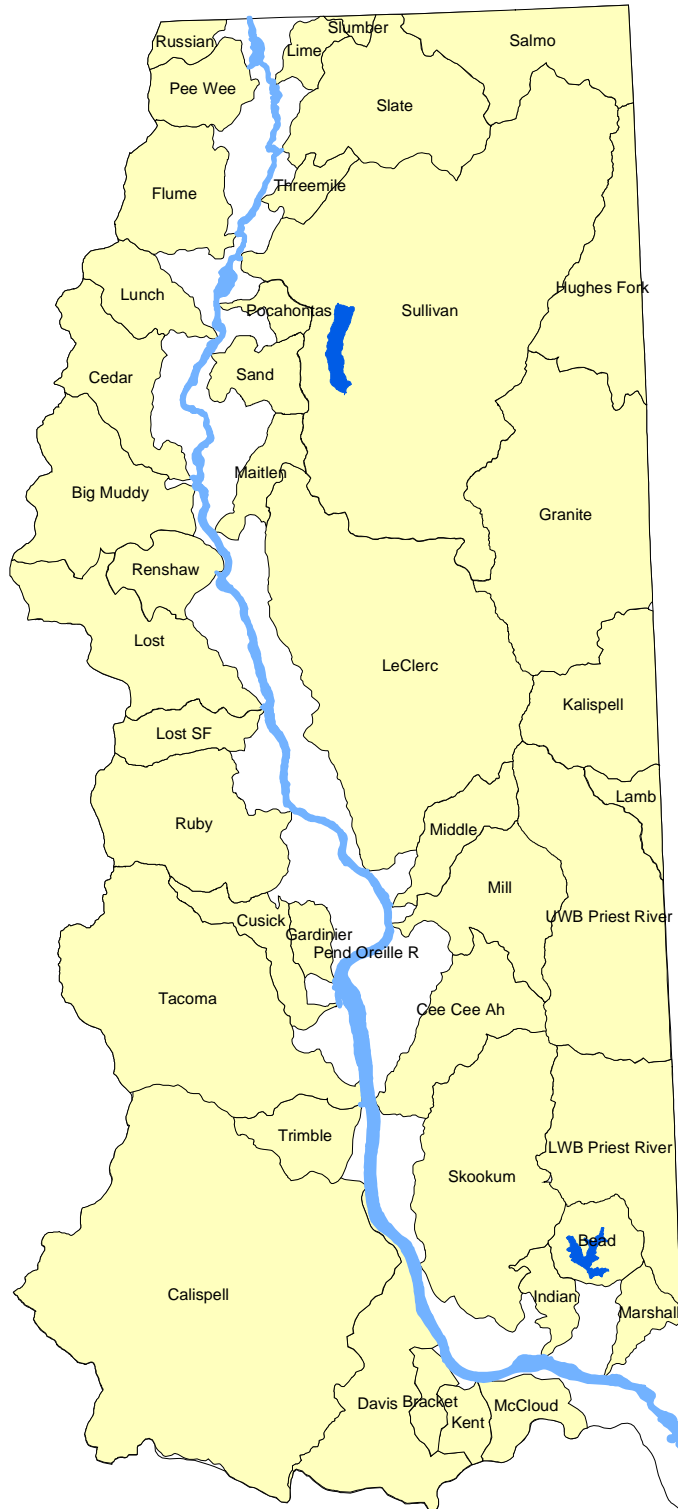
Map based on most recent WDFW, USFS, and KNRD data. May not reflect actual distribution as WRIA has not yet been fully surveyed. Westslope cutthroat trout lacking from lower reaches of many streams due to competition with non-native fish species.

Prepared by S. Lembcke/WDFW for Pend Oreille Lead Entity; 022604

1 inch equals 5.79 miles



Figure D
**Pygmy Whitefish
Distribution**




Legend

- Pygmy whitefish distribution
- Pend Oreille River
- Subbasin

Map based on Hallock and Mongillo 1998

Prepared by S. Lembcke/WDFW for Pend Oreille Lead Entity; 030804

1 inch equals 5.66 miles 

HABITAT LIMITING FACTORS

It is unknown which habitat attribute or combination of attributes are most limiting bull trout in WRIA 62 (WCC 2003). However, several factors are known to be significant in the decline of bull trout populations in WRIA 62: habitat degradation on the mainstem and within tributaries; human-made fish passage barriers into tributaries of the Pend Oreille River; non-native species introduction and management; and the construction and operation of three hydroelectric facilities on the mainstream Pend Oreille River (i.e., Boundary, Box Canyon, and Albeni Falls dams), which were constructed without fish passage facilities (WCC 2003).

Table 1 provides a summary of habitat limiting factors and watershed processes, by subbasin, that affect priority salmonid species in WRIA 62 based on the Bull Trout Limiting Factors Report for WRIA 62 (WCC 2003) and updated information provided by the TAG.

The table also includes the following:

- Subbasin Priority – High, medium, or low priority as described in the “Priority Areas and Actions” chapter of this document.
- USFWS Critical Habitat – Indicates if the subbasin has been proposed as “critical habitat” by the U.S. Fish and Wildlife Service.
- Limiting Factors (LF) Habitat – Indicates if the subbasin contains bull trout habitat that was designated as “occupied”, “suitable”, or “recoverable” in the Bull Trout Habitat Limiting Factors Report for WRIA 62 (WCC 2003). “Occupied” habitat is that in which bull trout are known to occur based on observation of occurrence from 1980 to present. “Suitable” habitat is that which is currently suitable for bull trout. “Recoverable” habitat is that which is potentially suitable for bull trout, but restoration efforts are necessary to upgrade the habitat to a “suitable” condition.
- Salmonids Present – Indicates which native and non-native salmonid species are present in each subbasin.

For a more detailed description of current and historic habitat conditions and salmonid status and distribution refer to the Bull Trout Habitat Limiting Factors Report for WRIA 62 (WCC 2003).

Table 1
Summary of
BULL TROUT
HABITAT LIMITING
FACTORS by Subbasin¹

¹ An "X" under "Habitat Limiting Factors" denotes that data is from the Bull Trout Habitat Limiting Factors Report for WRIA 62 (WCC 2003). A "T" under this category denotes more recent data from the TAG.

Table 1 Summary of BULL TROUT HABITAT LIMITING FACTORS by Subbasin ¹				Salmoinds Present								HABITAT LIMITING FACTOR															
				Native				Non-native																			
				Bull trout	Westslope cutthroat trout	Pygmy whitefish	Mountain whitefish	Kokanee	Eastern brook trout	Brown trout	Rainbow trout	Lake trout	Degraded riparian habitat	Embedded substrate/sedimentation	Channel complexity lacking	Degraded pool habitat	Altered channel morphology	Stream channel instability	Elevated stream temperature	Other water quality problem	Significant fish passage barriers	Other fish passage barriers	Non-native species competition	Development pressure	High road density	Dewatering	Historic bull trout harvest
Subbasin	POLE Priority	USFWS Critical Habitat	LF Habitat																								
Cedar	High	Yes	Occupied Recoverable	X	X				X	X	X			X			T		X	X							
Granite	High	Yes	Occupied Suitable	X	X				X				X	X		T				T		T					
Hughes Fork	High	Yes	Occupied Suitable	X	X				X					T		T				X		T					
Indian	High	Yes	Recoverable	X	X		X		X	X	X				X	X				X	T						
Kalispell	High	Yes	Occupied		X				X				T	T	T	T	X				T		T				
LeClerc	High	Yes	Occupied Recoverable Suitable	X	X		X		X	X	X		T	X	X		T			X	X		X	X			
Mill	High	Yes	Recoverable	X	X		X		X	X	X		T	X		X				T		T					
Pend Oreille River	High	Yes	Occupied	X	X		X		X	X	X	X			T		T	X	X	X		X	X				
Salmo, South Fork	High	No	Occupied Suitable	X	X						X													X			
Slate	High	Yes	Suitable		X				X		X																
Sullivan	High	Yes	Recoverable Suitable	X	X	X	X	X	X	X	X					X	X		X		X						
Upper West Branch	High	No	Recoverable	X	X				X	X	X		T	X	T	T	T				T	X	T				
Calispell	Medium	Yes	Recoverable		X				X		X		T	X			X	T		X	X	X	T				
Cee Cee Ah	Medium	No	Suitable		X		X		X	X				X	T	X		X			X		T				
Ruby	Medium	Yes	Recoverable		X				X	X	X		T	X		X		X			X						
Tacoma	Medium	Yes	Recoverable		X		X		X	X	X			T	X	X		X			X		T				

Table 1(continued)
**Summary of
BULL TROUT
HABITAT LIMITING
FACTORS by Subbasin¹**

¹ An "X" under "Habitat Limiting Factors" denotes that data is from the Bull Trout Habitat Limiting Factors Report for WRIA 62 (WCC 2003). A "T" under this category denotes more recent data from the TAG.

Table 1(continued)

Summary of

BULL TROUT

HABITAT LIMITING

FACTORS by Subbasin¹

¹ An "X" under "Habitat Limiting Factors" denotes that data is from the Bull Trout Habitat Limiting Factors Report for WRIA 62 (WCC 2003). A "T" under this category denotes more recent data from the TAG.

Subbasin	POLE Priority	USFWS Critical Habitat	LF Habitat	Salmoinds Present									HABITAT LIMITING FACTOR																
				Native				Non-native					Degraded riparian habitat	Embedded substrate/sedimentation	Channel complexity lacking	Degraded pool habitat	Altered channel morphology	Stream channel instability	Elevated stream temperature	Other water quality problem	Significant fish passage barriers	Other fish passage barriers	Non-native species competition	Development pressure	High road density	Dewatering	Historic bull trout harvest	Unknown	
				Bull trout	Westslope cutthroat trout	Pygmy whitefish	Mountain whitefish	Kokanee	Eastern brook trout	Brown trout	Rainbow trout	Lake trout																	
Bracket	Low	No	None						X															X					
Davis	Low	No	None		X			X	X	X	X													X					
Flume	Low	No	Suitable		X				X																				
Kent	Low	No	Recoverable						X								X	X						X					
Lamb	Low	No	Suitable		X				X					T	T	T	T			T			T		T				
Lost	Low	No	None		X				X		X			T	T	T	T			T			T					X	
Lost, South Fork	Low	No	Suitable		X				X	X	X																	X	
Lower West Branch	Low	No	None	X	X				X		X			X	T	T	T	X		X		T		T		T			
Lunch	Low	No	None	X	X		X		X	X	X																		
Maitlen	Low	No	None		X				X																			X	
Marshall	Low	No	None		X																							X	
McCloud	Low	No	Recoverable						X	X														X					
Middle	Low	No	Recoverable		X				X						X										T				
Pee Wee	Low	No	None		X				X																			X	
Pocahontas	Low	No	None		X						X															T		X	
Russian	Low	No	None		X																							X	
Sand	Low	No	Suitable		X		X		X		X				T		T						T	T				X	
Skookum	Low	No	Recoverable Unknown		X		X		X	X	X			X	T				X		X								
Slumber	Low	No	None		X				X																			X	
Trimble	Low	No	None		X				X									X				T							

PRIORITY AREAS AND ACTIONS

PRIORITY AREAS

The TAG used a two-step approach to prioritize areas within WRIA 62 for salmonid protection and habitat improvement actions. Step I involved assigning a priority of “High”, “Medium”, or “Low” to each of the 38 subbasins within WRIA 62 using the following guidelines.

High priority sub-basins are those that:

1. have recent documented occurrence (i.e., since 1980, per WCC 2003) by ESA-listed species during some portion of their life (spawning, rearing, over-wintering, summer cold-water refugia, etc.);
2. have the capability to provide suitable conditions for ESA-listed species during some portion of their life cycle if improvement activities are successful; and,
3. have no natural barriers for migratory bull trout to access suitable habitat.

Medium priority sub-basins are those that:

1. have historical documented occurrence (i.e., prior to 1980, per WCC 2003) of ESA-listed species during some portion of their life (spawning, rearing, over-wintering, summer cold-water refugia, etc.);
2. have the capability to provide suitable conditions for ESA-listed species during some portion of their life cycle if improvement activities are successful; and,
3. have no natural barriers for migratory bull trout to access suitable habitat.

Low priority sub-basins are those that:

1. have no documented current or historic occurrence of ESA-listed species (per WCC 2003).

Prioritization resulted in 11 of the 38 subbasins receiving a “High” priority, 4 of the 38 receiving a “Medium” priority, and the remaining receiving a “Low” priority (Figure E).

For Step II of the prioritization, “High” and “Medium” priority subbasins were ranked using seven additional criteria (see Appendix B for a detailed description and results of ranking criteria):

1. Current or historic habitat utilization by bull trout
2. Bull trout observations made within the last 10 years
3. Water temperature suitability
4. Amount of public versus private land
5. Current habitat condition
6. Presence of migration barriers
7. Restoration potential

This resulted in ranking of the “High” and “Medium” priority subbasins as follows (see Appendix A for detailed results):

High Priority Subbasin Ranking

#1 – Granite Subbasin
#2 – Salmo Subbasin
#3 – Hughes Fork Subbasin
#4 – Cedar Subbasin
#5 – Slate Subbasin
#6 – LeClerc Subbasin
#7 – Sullivan Subbasin
#8 – Indian Subbasin
#9 – Upper WB Priest River Subbasin
#10 – Mill Subbasin
#11 – Kalispell Subbasin

Medium Priority Subbasin Ranking

#1 – Cee Cee Ah Subbasin
#2 – Tacoma Subbasin
#3 – Ruby and Calispell Subbasins

The mainstem of the Pend Oreille River is also considered to be a “High” priority for salmonid recovery.

PRIORITY ACTIONS

Priority actions were determined for each of the “High” and “Medium” priority subbasins using information contained in the Bull Trout Limiting Factors Report for WRIA 62 (WCC 2003) and professional judgment of the TAG. Table 2 provides a description of each priority action by subbasin and reach. The table also provides the rationale behind the need for each priority action as well as the level of community support for each action. Additionally, the table lists the species which will benefit from each action, the SRFB project type (i.e., assessment or restoration), and action priority. Action priority is a chronological ranking of the actions within each subbasin. It should not, however, be assumed that actions will occur in this order. A variety of factors including community support, landowner willingness, and funding will determine the order in which actions may be implemented.

Figures F-T are maps of priority actions within each “High” and “Medium” priority subbasin.

Priority subbasin ranking when combined with subbasin specific priority actions will focus the Salmonid Recovery Team project and sponsor solicitation efforts when developing the annual Pend Oreille Lead Entity habitat project list. Priority areas and actions will be updated as habitat and fish distribution assessments are completed, new data becomes available, and restoration actions are implemented.

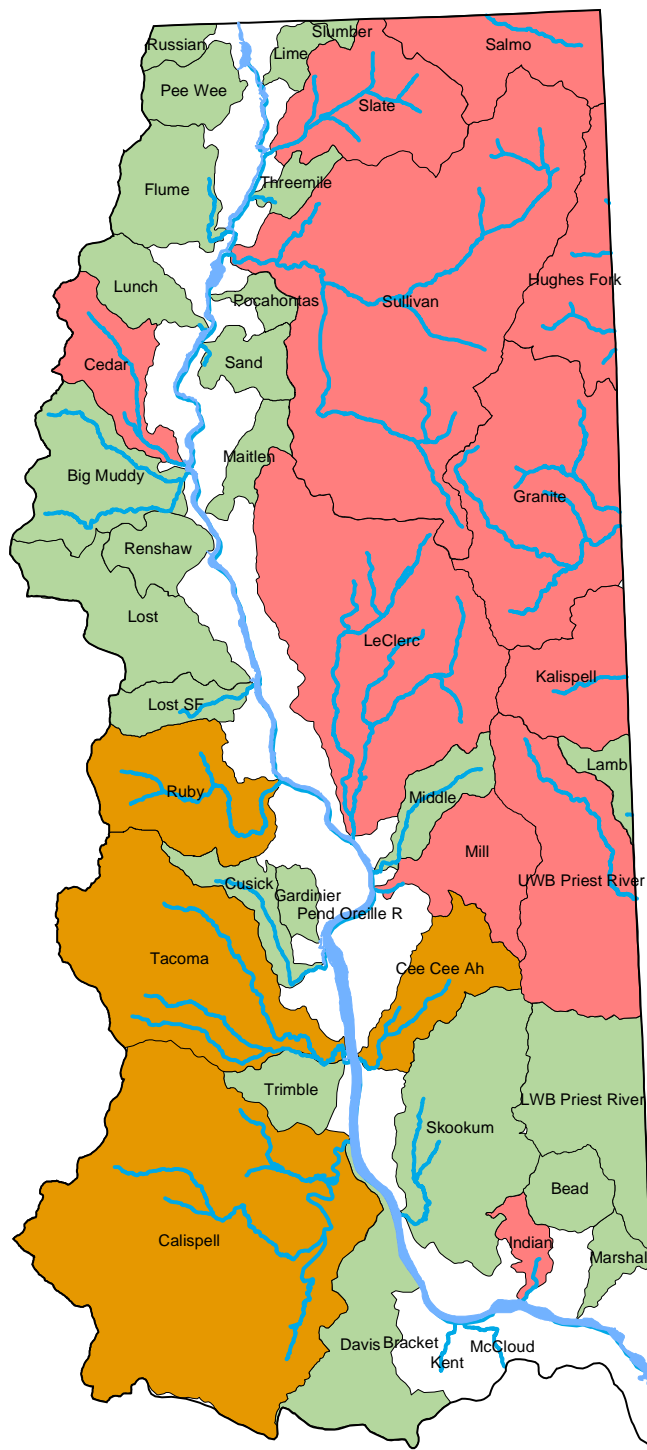


Figure E

WRIA 62 Priority Subbasins

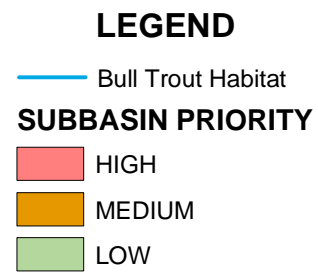


Table 2 - PRIORITY ACTIONS and AREAS

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
WRIA-wide	Bull trout (threatened)	Spawning Rearing Migration	Assessment	Determine bull trout distribution, abundance, and diversity using approved bull trout survey protocol	1	Very little is known about bull trout distribution, abundance and diversity in the WRIA. Gaining a better understanding of these attributes will help the lead entity focus restoration actions.	Moderate
WRIA-wide	Bull trout (threatened)	Spawning	Assessment	Identify areas of high surface to groundwater interchange	2	This assessment will help identify for protection/restoration potential bull trout spawning/rearing reaches.	Low
WRIA-wide	Bull trout (threatened) WCT ³ MWF ⁴	Spawning Rearing Migration	Assessment	Evaluate instream flow needs for native salmonids in the mainstem Pend Oreille River and tributaries	3	This assessment will help identify and prioritize streams for setting instream flow regulations in WAC. Sufficient water quantity is necessary all salmonid life stages.	Low
WRIA-wide	Bull trout (threatened) WCT	Spawning Rearing	Assessment	Identify any pollution sources that threaten or have the potential to threaten water quality and aquatic health	4	This assessment will help identify and prioritize habitat restoration projects that will address water quality issues.	Low
WRIA-wide	Bull trout (threatened) WCT	Spawning Rearing	Assessment	Review current USFS grazing allotment plans to determine means to reduce overutilization of riparian vegetation and stream habitat by livestock	5	Overgrazing at isolated locations within riparian areas have destabilized streambanks (increasing sediment input), increased bankful width/depth ratios, eliminated or decreased riparian vegetation and shade. Changes to existing grazing operations would reduce grazing pressure and allow riparian vegetation to function properly.	Low
WRIA-wide	Bull trout WCT	Spawning Rearing	Assessment	Identify lands for sale that lend themselves to conservation easement agreements or purchase	6	This assessment will help identify and prioritize important salmonid habitat for protection	Moderate for easements; Low for

¹ River Miles are estimated.

² A sequential prioritization of action/need within subbasin

³ WCT = Westslope cutthroat trout

⁴ MWF = Mountain whitefish

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
						under conservation agreement or purchase.	acquisitions
PEND OREILLE MAINSTEM – High Priority Area (Figure F)							
Pend Oreille River (RM 90)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage at Albeni Falls Dam	1	Albeni Falls Dam prevents migration of adfluvial bull trout from Lake Pend Oreille, Idaho to spawning and rearing habitat in Washington.	Low
Pend Oreille River (RM 34)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage at Box Canyon Dam	2	Box Canyon Dam prevents migration of adfluvial bull trout from Lake Pend Oreille, Idaho to spawning and rearing habitat found from RM 17-34.	Low
Pend Oreille River (RM 17)	Bull trout (threatened) WCT	Migration	Assessment	Assess need and feasibility of restoring fish passage at Boundary Dam	3	Boundary Dam potentially prevents migration of adfluvial and fluvial bull trout from the Columbia and Salmo Rivers.	Low
GRANITE SUBBASIN – High Priority Area #1 (Figure G)							
Tillicum Ck (RM 0-2.4) NF Tillicum (RM 0-1.5)	Bull trout (threatened) WCT	Spawning Rearing	Assessment	Identify and prioritize for improvements those specific road segments that are contributing sediment to streams in high priority subbasins	1	Several road segments are in close proximity to streams. Relocating some of these road segments is not a viable option, however reconditioning the existing road will reduce sediment deliver to the streams. This will result in tangible benefits to all aquatic species.	Moderate
Granite (subbasin-wide)	Bull trout (threatened) WCT	Migration	Assessment	Identify and prioritize barriers for restoration of fish passage	2	A complete barrier assessment has not been completed in those subbasins which drain to the Priest River/Lake. An assessment is needed to identify and prioritize barriers for removal.	Moderate
NF Granite (RM 1.7-4.3)	Bull trout (threatened) WCT	Spawning Rearing	Assessment	Explore possible relocation of encroaching portions of USFS Rd. 302 out of the riparian area (about 6 miles); stabilize cut and fill slopes	3	This road, which runs immediately adjacent to the stream, is contributing sediment to the stream. Possible relocation options should be explored.	Low
Tillicum Ck (RM 2.4)	Bull trout (threatened)	Migration	Restoration	Replace culverts that are fish passage barriers	4	These barriers prevent migration of adfluvial bull trout from Priest	Moderate

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
High Rock (RM 0.8) Unnamed tribs to NF Granite Ck (RM 0.1, 0.1) Unnamed trib to Sema Ck (RM 0.1) Unnamed trib to SF Granite (RM 0.1)	WCT					River/Lake into tributaries.	
Granite (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Assessment	Conduct a subbasin-wide habitat assessment to identify watershed problems limiting salmonids	5	This assessment would help identify and prioritize habitat restoration projects throughout the subbasin.	Low
SALMO SUBBASIN – High Priority Area #2 NOTE: No actions needed. Subbasin located entirely within USFS Wilderness Area							
HUGHES FORK SUBBASIN – High Priority Area #3 (Figure H)							
Gold drainage	Bull trout (threatened) WCT	Spawning Rearing	Assessment	Identify and prioritize for corrections road segments that are contributing sediment to streams in high priority subbasins	1	Several road segments are in close proximity to streams. Relocating some of these road segments is not a viable option, however reconditioning the existing road will reduce sediment deliver to the streams. This will result in tangible benefits to all aquatic species.	Moderate
Muskegon Ck (RM 0.4-1.2)	Bull trout (threatened) WCT	Spawning Rearing Migration	Restoration	Address road maintenance problems associated with USFS Rds. 1013	2	This road is contribution sediment to the stream	Moderate
Hughes Fork (subbasin-wide)	Bull trout (threatened) WCT	Migration	Assessment	Identify and prioritize barriers for restoration of fish passage	3	A complete barrier assessment has not been completed in those subbasins which drain to the Priest River/Lake. An assessment is needed to identify and prioritize barriers for removal.	Moderate
Gold Creek (RM 2.3)	Bull trout (threatened) WCT	Migration	Restoration	Replace culverts that are fish passage barriers	4	These barriers prevent migration of adfluvial bull trout from Priest Lake into tributaries.	Moderate

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
Hemlock Ck (RM 0.3)							
Unnamed trib to Gold Creek (RM 0.1, 0.4, 0.5)							
Hughes Fork (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Assessment	Conduct a subbasin-wide habitat assessment to identify watershed problems limiting salmonids	5	This effort will help identify and prioritize habitat restoration projects throughout the subbasin.	Low
Hughes Fork (RM)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore stream channels	6	The mainstem of Hughes Fork was ditched and straightened during WWII. A major loss of critical habitat resulted. The stream needs to be restored to its original channel.	Moderate
CEDAR SUBBASIN – High Priority Area #4 (Figure I)							
Cedar Creek (RM 3)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage at the Cedar Creek Dam	1	Cedar Creek Dam blocks approx. 10 miles of proposed bull trout “critical habitat”	High
Cedar Creek (subbasin-wide)	Bull trout (threatened) WCT	Migration	Restoration	Replace or remove culverts which have been identified as fish passage barriers	2	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	Moderate
Cedar Creek (subbasin-side)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	3	Non-native brook trout hybridize with bull trout and compete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and compete for habitat and resources with both WCT and bull trout.	Very Low
Cedar Creek (RM)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Repair and maintain Cedar Creek Road (county) to reduce sediment input	4	Excessive soil input into streams can limit winter rearing and spawning habitat through the filling of pools and interstitial spaces within gravels and cobbles.	Moderate
Cedar Creek (RM 0-1.5)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore habitat complexity	5	This reach, which flows through the Town of Ione, is lacking structure and complexity due to manipulation by adjacent landowners.	Low

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
SLATE SUBBASIN – High Priority Area #5 (Figure J)							
Slate Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	1	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	Very Low
LECLERC SUBBASIN – High Priority Area #6 (Figure K)							
WB LeClerc (RM 0-2.0)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	1	Excessive soil input into streams can limit winter rearing and spawning habitat through the filling of pools and interstitial spaces within gravels and cobbles.	Low
MB LeClerc (RM 1.2-4)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Riparian fencing and planting (approx. 4 miles)	2	Riparian vegetation and stream channel are being over utilized by livestock. Riparian function to provide stream bank stability, shade, and in stream wood has been diminished	Low
Leclerc Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	3	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	Very Low
MB LeClerc (RM 0.4, 0.9, 1.3, 2.1, 2.8, 3.7, 5.2, and 5.8) WB LeClerc (RM 11.4) Saucon Creek (RM 1.0) Whiteman Ck (RM 2.8)	Bull trout (threatened) WCT	Migration	Restoration	Replace or remove culverts which have been identified as fish passage barriers	4	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	Moderate

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
Mineral Ck (RM 1.3)							
Unnamed (RM 1.1)							
Leclerc Creek, West Branch (RM)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage at the old Diamond Match Company log crib dam and restore upstream channel to proper form.	5	This barrier blocks access to 11 miles of proposed bull trout “critical habitat”.	Moderate
WB LeClerc (RM)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Install engineered log jams	6	Segments of the stream lack habitat complexity, particularly in the amount of instream wood needed for cover.	Low
WB LeClerc (RM 7.3)	Bull trout (threatened) WCT	Spawning Rearing	Assessment Restoration	Conduct a slope stabilization feasibility study at old Diamond Match Company mill site and implement actions necessary to restore habitat.	7	This site is a constant source of fine sediment that degrades downstream spawning and rearing habitat.	Low
SULLIVAN SUBBASIN – High Priority Area #7 (Figure L)							
Sullivan Creek (RM 3.25)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage at Mill Pond Dam	1	This barrier blocks access to 28 miles of proposed bull trout “critical habitat”.	Moderate
Outlet Creek (RM 0.5)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage at Sullivan Lake Dam	2	This barrier blocks access to 16 miles and 1,251 acres (Sullivan Lake) of proposed bull trout “critical habitat”.	Low
Sullivan Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout), except kokanee	3	Non-native brook trout hybridize with bull trout and compete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and compete for habitat and resources with both WCT and bull trout. Kokanee are an important recreational fish in Sullivan Lake, which do not negatively impact bull trout populations and provide forage.	Very Low
Sullivan Creek (RM 2.8-3.2) Pass Creek	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	4	Excessive soil input into streams can limit winter rearing and spawning habitat through the filling of pools and interstitial	Low

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
(RM 2.6-5.1)						spaces within gravels and cobbles.	
Sullivan Creek (RM 3.75-5.25)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Install engineered log jams above Mill Pond Dam	5	Upper Sullivan Creek lacks habitat complexity, particularly in the amount of instream wood needed for cover.	Low
Sullivan Creek (RM 0-3.25)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Stabilize slopes below Mill Pond Dam	6	Steep slopes with drainage problems are a periodic source of fine sediment that degrades downstream spawning and rearing habitat.	Moderate
Sullivan Lake (RM 0.5 of Outlet Creek)	Bull trout (threatened)	Spawning Rearing Migration	Assessment	Determine the biological effects of current and alternative management of lake water levels on bull trout life histories above and below the dam	7	Existing unnatural flow regime in lower Sullivan Creek and aggradation of lower Harvey Creek are results of present hydroelectric project (i.e., Sullivan Lake Dam).	Moderate
Sullivan Lake	Pygmy whitefish	Spawning Rearing	Assessment	Assess habitat factors limiting pygmy whitefish in lake	8	Pygmy whitefish are a state “sensitive” species and long term viability needs to be assured to keep it from being listed under ESA.	Low
Sullivan Creek (all)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore habitat complexity	9	Upper Sullivan Creek had extensive riparian harvest and wood pulled out of the stream in the 1960-70s. Lower Sullivan Creek lacks spawning material and instream wood due to interception by Mill Pond Dam. Habitat complexity must be improved to provide appropriate spawning and rearing habitat for bull trout and other salmonids.	Low
INDIAN SUBBASIN – High Priority Area #8 (Figure M)							
Indian Creek (RM 0.1 and 0.8)	Bull trout (threatened) WCT	Migration	Restoration	Replace or remove culverts which have been identified as fish passage barriers	1	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	Moderate
Indian Creek (RM 0-1)	Bull trout (threatened) WCT	Migration Rearing	Restoration	Screen water diversions	2	These unscreened water diversions may be impacting juvenile fish by diverting them out of the stream channel.	Moderate

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
Indian Creek (RM 0-1)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage below first water diversion where landscaping is impacting fish migration	3	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into Indian Creek.	Moderate
Indian Creek (RM 0-2.3)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Conduct instream habitat enhancement to increase stream channel complexity and improve recruitment of spawning gravels	4	Recent habitat surveys indicate low large woody debris, pool, and spawning gravel abundance.	Low
Indian Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	5	Non-native brook trout hybridize with bull trout and compete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and compete for habitat and resources with both WCT and bull trout.	Very Low
UPPER WEST BRANCH PRIEST RIVER SUBBASIN – High Priority Area #9 (Figure N)							
UWB Priest River (RM 5.1-8.0) Consalus Ck (RM 0.2-1.0) Unnamed trib to Consalus (RM 0-0.8)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	1	Several road segments are in close proximity to streams. Relocating some of these road segments is not a viable option, however reconditioning the existing road will reduce sediment deliver to the streams. This will result in tangible benefits to all aquatic species.	Low
UWB Priest River (subbasin-wide)	Bull trout (threatened) WCT	Migration	Assessment	Identify and prioritize barriers for restoration of fish passage	2	A complete barrier assessment has not been completed in those subbasins which drain to the Priest River/Lake. An assessment is needed to identify and prioritize barriers for removal.	Moderate
Consalus Ck (RM 0.2, 0.6 and 1.0) Unnamed trib to Consalus (RM 0.8) Paqua Creek (RM 6.0)	Bull trout (threatened) WCT	Migration	Restoration	Replace culverts that are fish passage barriers	3	These barriers prevent migration of adfluvial bull trout from Priest River/Lake into tributaries.	Moderate

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
Solo Creek (RM 2.2) Tola Creek (RM 0.1) Unnamed tribs to UWB (RM 0.4, 0.5, 1.0, 1.0, and 1.6) Klahowya Ck (RM 0.5) Unnamed trib to Klahowya (RM 0.5)							
Upper West Branch Priest River (RM)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore habitat complexity	4	Historic timber harvest, road building, and railroad construction have altered the riparian zones in the subbasin. This alteration has resulted in less available large woody debris available to streams. The creation of large woody debris would enhance channel complexity.	Low
Upper West Branch Priest River (RM)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Enhance riparian cover	5	Longterm historic grazing on USFS managed lands has resulted in a loss of native riparian species with sections of the riparian zone.	Low
Upper West Branch Priest River (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	6	Non-native brook trout hybridize with bull trout and compete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and compete for habitat and resources with both WCT and bull trout.	Very Low
Upper West Branch Priest River (RM)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Address road maintenance problems associated with USFS Rds. 312, 659, 1089, 333, 1137, 460, 1090, 1075	7	Portions of these roads are contributing sediment to the streams within the subbasin. The	Low

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
				and abandoned road network in the headwaters		increased sediment adversely impacts aquatic habitat.	
MILL SUBBASIN – High Priority Area #10 (Figure O)							
Mill Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	1	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	Very Low
Mill Creek (RM 3.4, 5.4, and 7.7) Unnamed trib to Mill Creek (RM 0.2) Sylvia Creek (RM2.7)	Bull trout (threatened) WCT	Migration	Restoration	Replace culverts that are fish passage barriers	2	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	Moderate
Mill Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	3	High road density (active and abandoned), numerous stream crossings, and segments located within the riparian area have contributed to very high levels of instream sediment.	Low
Mill Creek (RM 1.4-7.7) Nola Creek (RM 0-0.9)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore stream channel complexity especially pool habitat	4	Lack of large woody debris due to historical harvest of riparian area timber has resulted in a deficiency in pool habitat.	Moderate
KALISPELL SUBBASIN – High Priority Area #11 (Figure P)							
Kalispell Crk (RM 0-0.9 and 3.5-4.1) Hungry Ck (RM 0.6-1.4) Diamond Ck (RM 0.3-1.1 and 2-2.7)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate USFS Rds. 308, 657, and 2119 out of the riparian area	1	These roads, which run immediately adjacent to the stream, are contributing sediment to the stream. Opportunities exist to relocate those portions of the roads which are most adversely impacting aquatic resources.	Low
Hungry Ck	Bull trout	Spawning	Restoration	Address road maintenance problems	2	Portions of these roads are	Low

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
(RM 0-0.6) Deerhorn (RM 1.2-2.0)	(threatened) WCT	Rearing		associated with USFS Rds. 308, 2119, 2120, and 2513		contributing sediment to the streams with the subbasin. The increased sediment adversely impacts aquatic habitat.	
Kalispell (subbasin-wide)	Bull trout (threatened) WCT	Migration	Assessment	Identify and prioritize barriers for restoration of fish passage	3	A complete barrier assessment has not been completed in those subbasins which drain to the Priest River/Lake. An assessment is needed to identify and prioritize barriers for removal.	Moderate
Kalispell Crk (RM 3.5) Diamond Ck (RM 1.0) Deerhorn Ck (RM 1.0) Unnamed (RM 0.1)	Bull trout (threatened) WCT	Migration	Restoration	Replace culverts that are potential fish passage barriers	4	These barriers prevent migration of adfluvial bull trout from Priest River/Lake into tributaries.	Moderate
Kalispell Creek (RM)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore stream channel complexity	5	Historic timber harvest, road building, and railroad construction have altered the riparian zones in the subbasin. This alteration has resulted in less available large woody debris available to streams. The creation of large woody debris would enhance channel complexity.	Low
Kalispell Crk (RM 2.6-2.9)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Re-establish riparian vegetation (esp. conifers) in riparian zones along stream between Pable and Hungry Creeks	6	Historical land use practices have altered the riparian zone. Reestablishing the riparian zones will jump start natural succession of these sites and will more quickly provide large woody debris and shading to streams.	Low
CEE CEE AH SUBBASIN – Medium Priority Area #1 (Figure Q)							
CeeCeeAh (subbasin-wide)	Bull trout (threatened)	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	1	Non-native brook trout hybridize with bull trout and complete for	Very Low

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
	WCT					habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	
CeeCeeAh Ck (RM 2.6 and 5.0)	Bull trout (threatened) WCT	Migration	Restoration	Replace culverts that are fish passage barriers	2	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	Moderate
CeeCeeAh (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	3	High road density (active and abandoned), numerous stream crossings, and segments located within the riparian area have contributed to very high levels of instream sediment.	Low
CeeCeeAh Ck (RM 0-9.4) Browns Ck (RM 0-3.7)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore habitat complexity esp. pool habitat	4	Relatively recent habitat surveys indicate low large wood debris, pool, and spawning gravel abundance.	Low
TACOMA SUBBASIN – Medium Priority Area #2 (Figure R)							
Tacoma Crk (RM 8.1-9.3 and 12.2-15.5) Little Tacoma (RM 0.7-1.5)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	1	Excessive soil input into streams can limit winter rearing and spawning habitat through the filling of pools and interstitial spaces within gravels and cobbles.	Low
Tacoma Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	2	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	Very Low
Tacoma Crk (RM 2.7, 3.5, and 10.0) NF of SF Tacoma Crk (RM 4.2)	Bull trout (threatened) WCT	Migration	Restoration	Replace or remove culverts which have been identified as fish passage barriers	3	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	Moderate

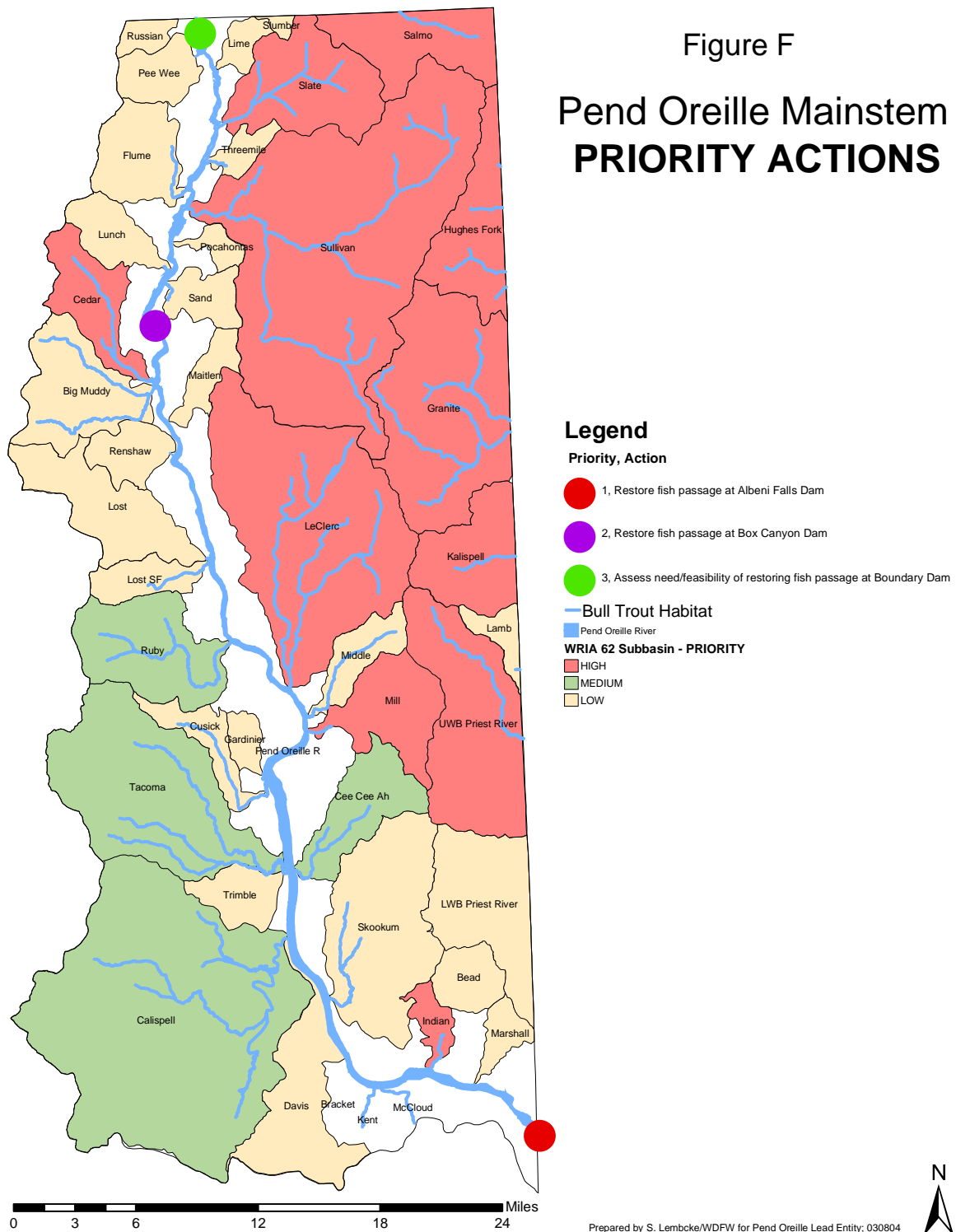
Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
Calispell Pk Creek (RM 0.3)							
CALISPELL SUBBASIN – Medium Priority Area #3 (Figure S)							
Calispell Creek (RM 0)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage at the Calispell Pumps	1	This barrier, which is located at the mouth, blocks access to approx. 13 miles of proposed bull trout “critical habitat”.	Low
Calispell Creek (RM 6)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage to Calispell Lake at the Duck Club Dam	2	This barrier blocks access to 22 miles of proposed bull trout “critical habitat”.	Low
Calispell Creek (RM 7.5-8)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage and properly screen water diversion structure	3	This barrier blocks access to ___ miles of proposed bull trout “critical habitat”.	Low
Smalle Ck (RM 3.8 and 6.0) EF Smalle Ck (RM 1.0) Winchester (RM 2.7)	Bull trout (threatened) WCT	Migration	Restoration	Replace or remove culverts which have been identified as fish passage barriers	4	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	Moderate
Calispell Ck (RM 0-5.6 and 11-11.5) Winchester (RM 2.7-5.4) Smalle Ck (RM 0-5.2) EF Smalle (RM 0-1.6)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore riparian habitat	5	Diking, urban/residential development, crop production, and grazing have impacted the lower reaches of these streams by reducing or eliminating riparian cover.	Low
NF Calispell (RM 1.7-2.2 and 7.4-9.6) Tenmile Ck (RM 0-0.8) MF Calispell (RM 1.3-3.5)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore riparian habitat in upland areas where cattle grazing and timber harvest have altered density and composition	6	Relatively recent habitat surveys indicate extensive bank erosion and lack of riparian vegetation in upland meadow systems.	Low

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
Unnamed trib to MF Calispell (RM 0-0.8)							
Winchester Creek (RM 2.1-2.7)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Restore floodplain connectivity on lower reaches of stream.	7	Dikes constructed to decrease flooding have limited floodplain connectivity.	Low
Winchester (RM 0.5)	Bull trout (threatened) WCT	Migration	Restoration	Restore fish passage and properly screen water diversion	8	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	MIR
Winchester (RM 2.7-7.0) Smalle Ck (RM 3.7-6.0) EF Smalle (RM 0-2.5)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Conduct instream habitat enhancement to increase stream channel complexity and improve recruitment of spawning gravels	9	Relatively recent habitat surveys indicate low large wood debris, pool, and spawning gravel abundance.	Low
Calispell Creek (RM)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	10	High road density (active and abandoned), numerous stream crossings, and segments located within the riparian area have contributed to very high levels of instream sediment.	Low
RUBY SUBBASIN – Medium Priority Area #4 (Figure T)							
Ruby Creek (RM 0.2-1.1) Little Ruby (RM 0-0.6)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	1	Excessive soil input into streams can limit winter rearing and spawning habitat through the filling of pools and interstitial spaces within gravels and cobbles.	Low
Ruby Creek (RM 4.4-5.0)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Fence riparian areas to exclude livestock	2	Riparian vegetation and stream channel are being overutilized by livestock. Riparian function to provide streambank stability, shade, and instream wood has been diminished.	Low
Ruby Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	3	Non-native brook trout hybridize with bull trout and compete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and compete	Very Low

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
						for habitat and resources with both WCT and bull trout.	
Ruby Creek (RM 8.8) NF Ruby Ck (RM 0.1 and 1.6) Little Ruby (RM 0.8)	Bull trout (threatened) WCT	Migration	Restoration	Replace or remove culverts which have been identified as fish passage barriers	4	These barriers prevent migration of adfluvial bull trout from the mainstem Pend Oreille River into the subbasin.	Moderate
BEAD SUBBASIN – Low Priority Area							
Bead Lake	Pygmy whitefish	Spawning Rearing	Assessment	Assess habitat factors limiting pygmy whitefish in lake	1	Pygmy whitefish are a state “sensitive” species and long term viability needs to be assured to keep it from being listed under ESA	MIR
BIG MUDDY SUBBASIN – Low Priority Area							
Big Muddy Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	1	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	Very Low
CUSICK SUBBASIN – Low Priority Area							
Cusick Creek (RM 1.8)	WCT	Spawning Rearing	Restoration	Restore riparian area, stabilize banks, exclude livestock, and establish off-channel livestock watering on lower reach of stream	1	The lower reaches of the stream flow through a barnyard. Livestock have destroyed all riparian vegetation, eroded and destabilized banks. Fencing and riparian restoration will minimize impacts and restore thermal cover and streambank stability.	Low
LITTLE MUDDY SUBBASIN – Low Priority Area							
Little Muddy Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	1	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with	Very Low

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
						both WCT and bull trout.	
LOST SUBBASIN – Low Priority Area							
Lost Creek (RM 8.2-10.2)	WCT	Spawning Rearing	Restoration	Install approximately 2 miles of livestock exclusion fence along stream	1	This reach is currently overutilized by livestock. Streambanks are unstable, riparian vegetation is impacted, and bank erosion is a constant source of stream sediment.	Low
Lost Creek (RM 8.3-9.3)	WCT	Spawning Rearing	Restoration	Install hardened livestock crossings (3)	2	Frequent stream crossing by livestock has resulted in streambed compaction and loss of riparian cover. Armoring these sites will allow cattle access while reducing sediment input to stream.	Moderate
Lost Creek (RM 8.2-11.5)	WCT	Spawning Rearing	Restoration	Restore riparian cover	3	This reach is overutilized by livestock. Riparian cover has been degraded. Restoring riparian cover will provide stream shading, bank stability, recruitment of large woody debris and detritus, and filter sediment.	
Lost Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	4	Non-native brook trout hybridize with bull trout and compete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and compete for habitat and resources with both WCT and bull trout.	Very Low
LOWER WEST BRANCH PRIEST RIVER – Low Priority Area							
LWB Priest River (RM 22.3-24.6)	WCT	Spawning Rearing	Restoration	Relocate, obliterate, and/or reconstruct road segments which are contributing sediment to streams	1	This road, which runs immediately adjacent to the stream, is contributing sediment to the stream. Opportunities exist to relocate those portions of the roads which are most adversely impacting aquatic resources.	MIR
LWB Priest River	WCT	Migration	Assessment	Identify and prioritize barriers for	2	A complete barrier assessment	MIR

Reach ¹	Species	Habitat Type Addressed	Project Type	Actions/Need	Action Priority ²	Rationale	Community Support
(subbasin-wide)				restoration of fish passage		has not been completed in those subbasins which drain to the Priest River/Lake. An assessment is needed to identify and prioritize barriers for removal.	
LWB Priest River (subbasin-wide)	WCT	Migration	Restoration	Replace culverts that are potential fish passage barriers	3	These barriers prevent migration of westslope cutthroat trout from Priest River into tributaries.	MIR
MIDDLE SUBBASIN – Low Priority Area							
Middle Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	1	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	Very Low
SAND SUBBASIN – Low Priority Area							
Sand Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	1	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	Very Low
SKOOKUM SUBBASIN – Low Priority Area							
Skookum Creek (RM _____)	WCT	Spawning Rearing	Restoration	Restore riparian area, stabilize banks, and fence to exclude livestock on lower reaches of stream	1	Intensive agricultural activity has degraded the riparian area reducing or eliminating stream shading, large woody debris, and bank stability.	Low
Skookum Creek (subbasin-wide)	Bull trout (threatened) WCT	Spawning Rearing	Restoration	Remove non-native fish species (brook trout and rainbow trout)	2	Non-native brook trout hybridize with bull trout and complete for habitat and resources; non-native rainbow trout hybridize with native WCT trout and complete for habitat and resources with both WCT and bull trout.	Very Low
Skookum Creek (RM _____)	WCT	Spawning Rearing	Protection	Establish conservation easement or other protection measure along lower reaches of stream	3	Conservation easement or other protection measure is necessary to protect restored riparian area.	Moderate/ easements;lo /acquisitions



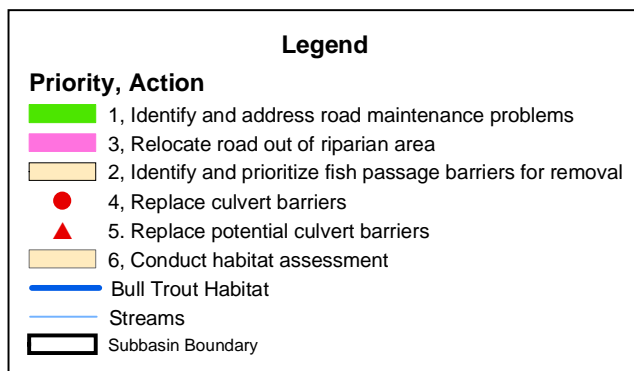
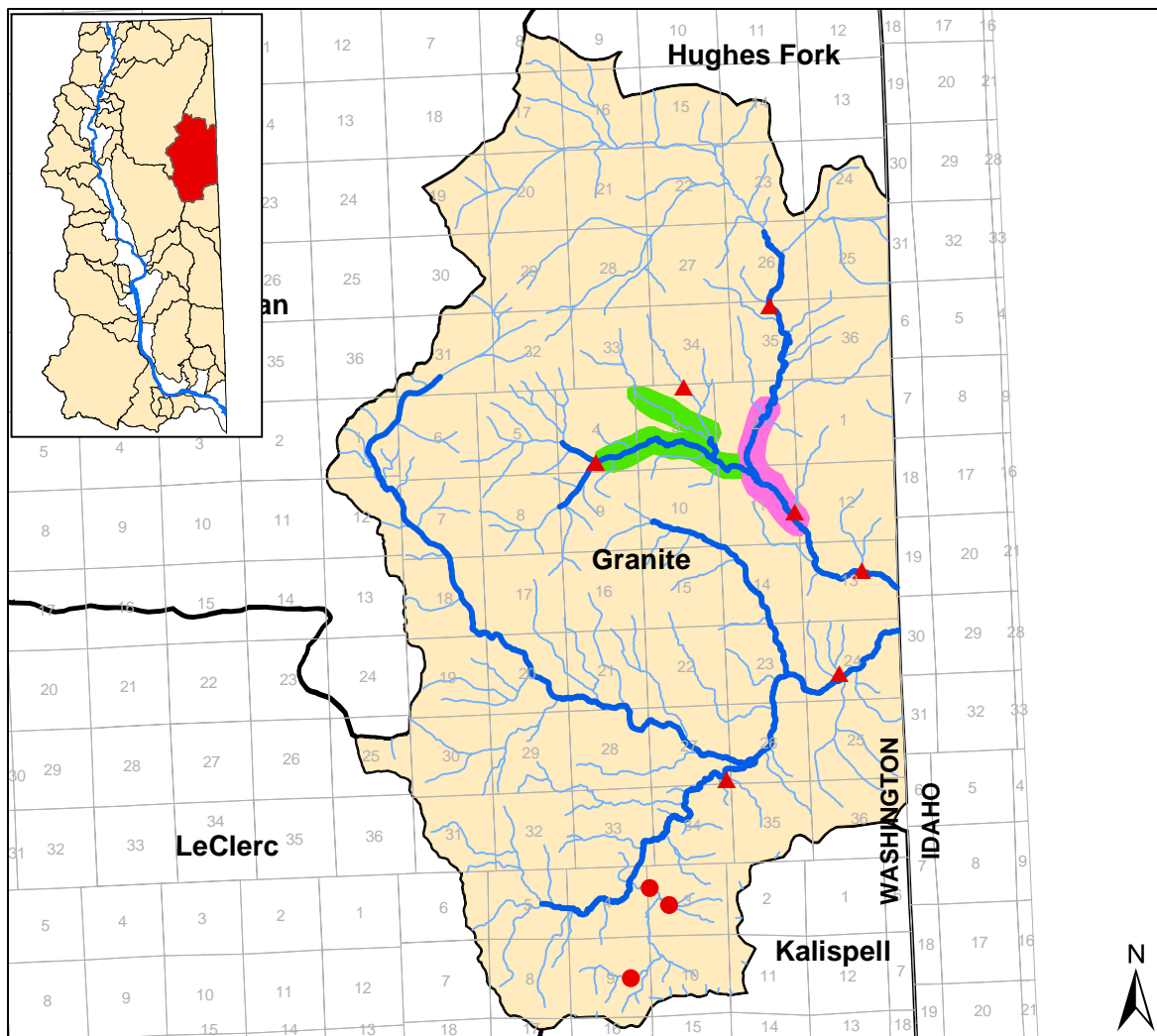


Figure G
Granite Subbasin
PRIORITY ACTIONS
 High - #1

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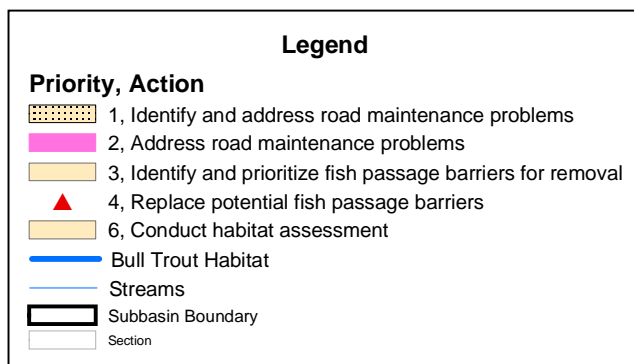
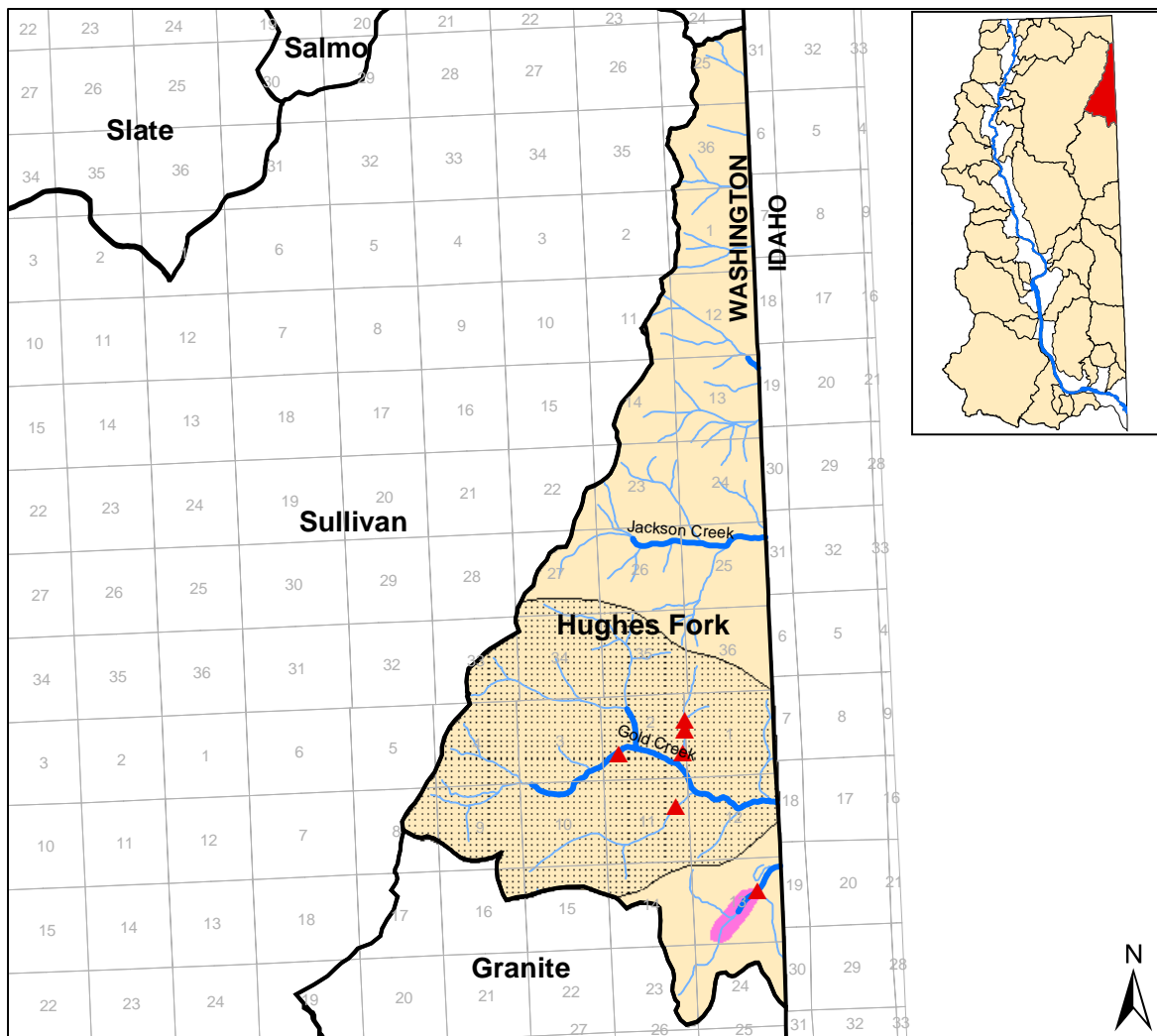
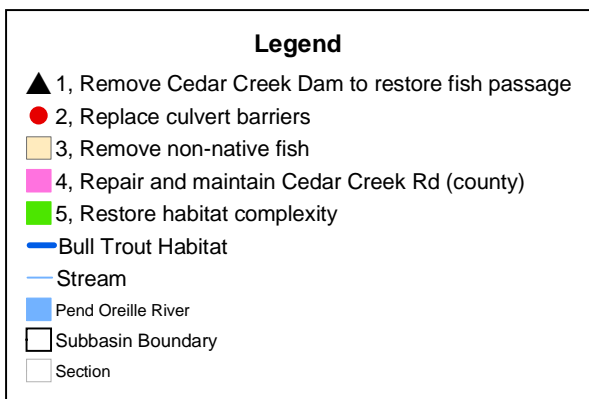
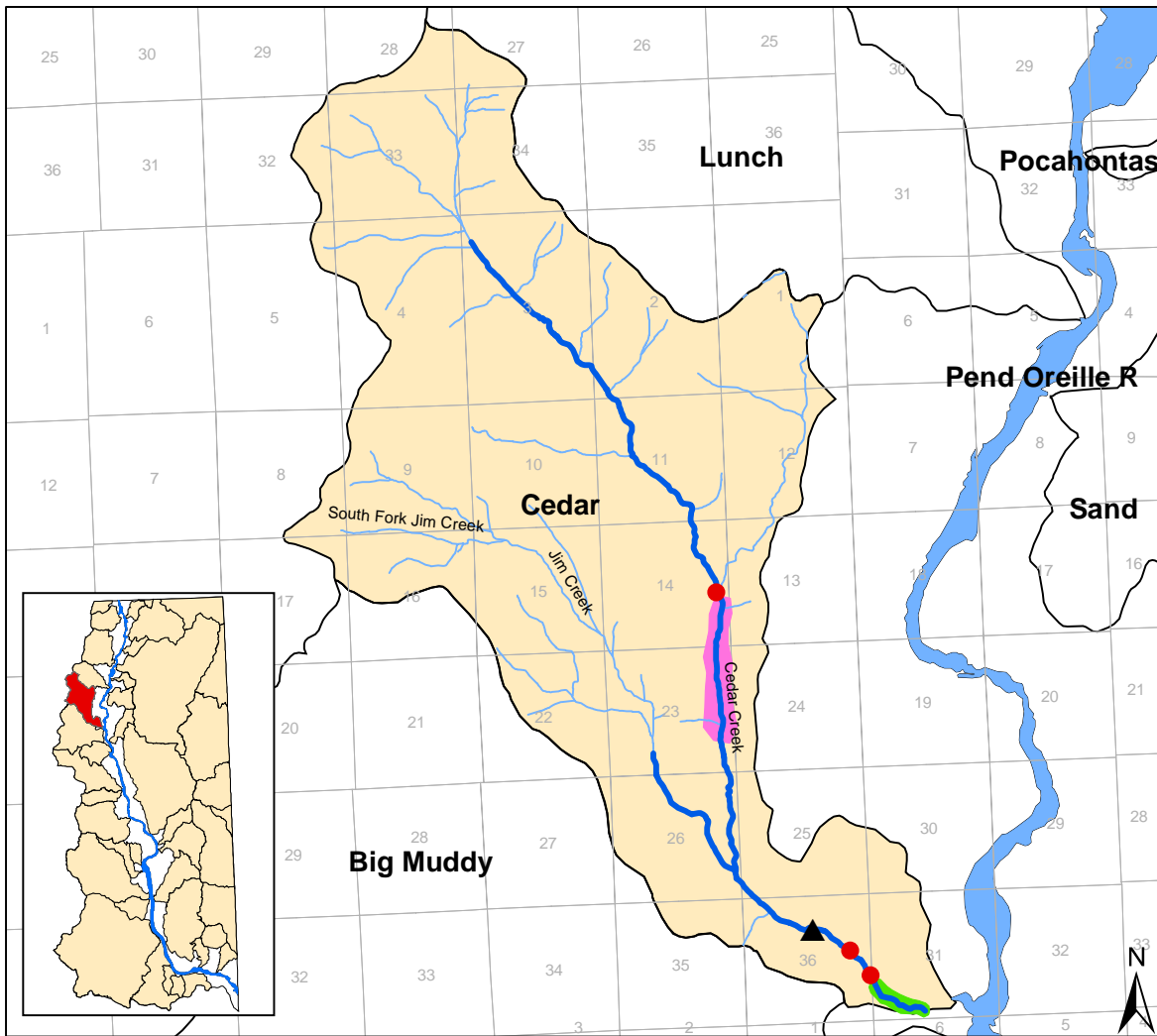


Figure H
Hughes Fork Subbasin
PRIORITY ACTIONS
 High - #3

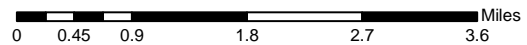
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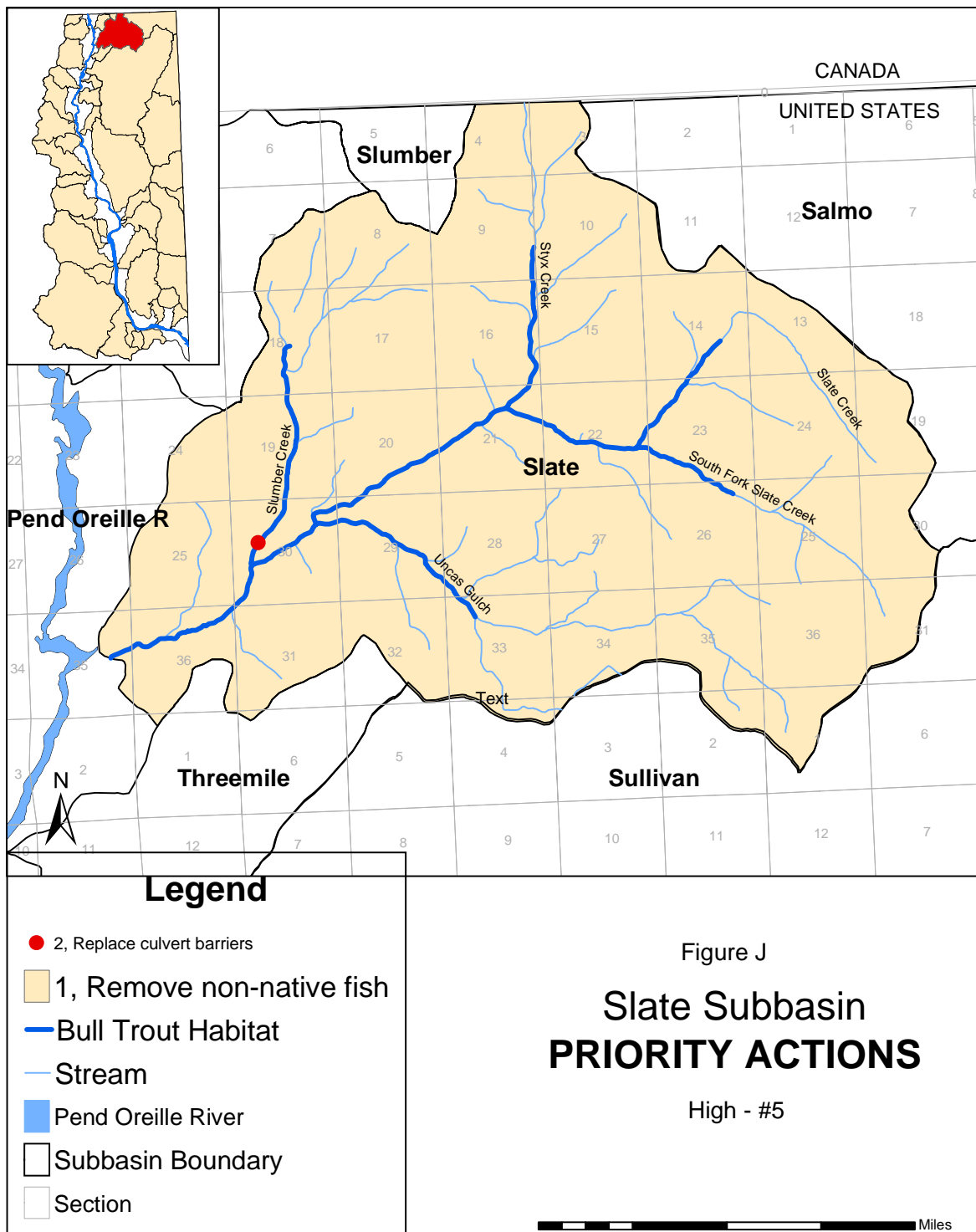


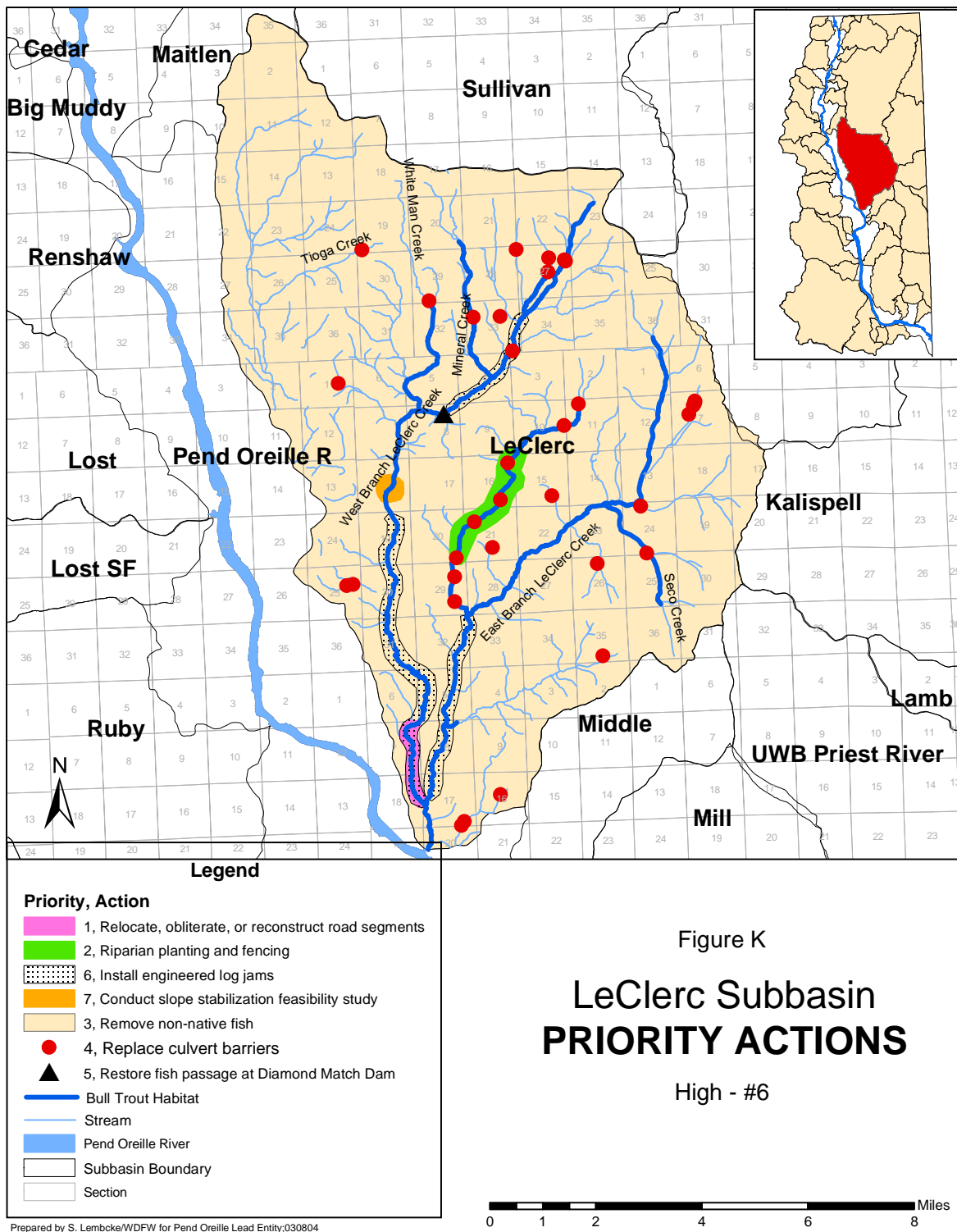


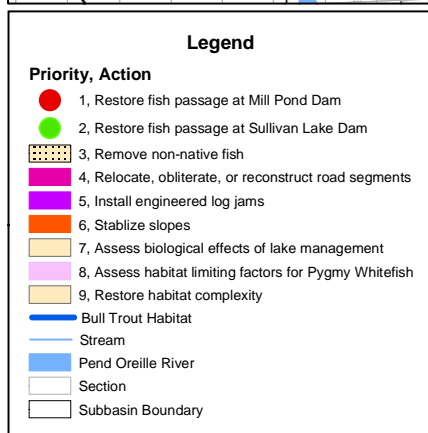
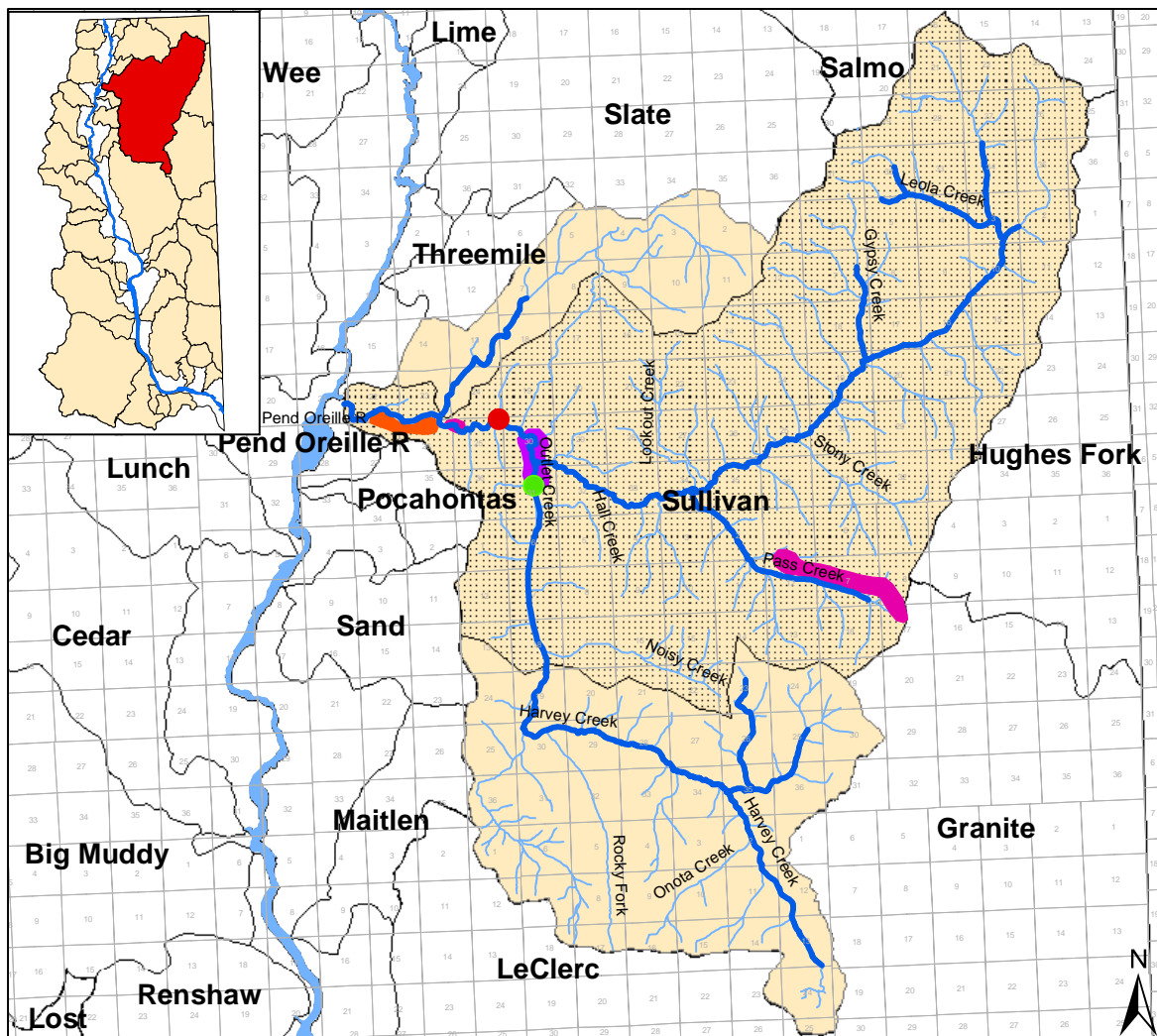
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Figure I
Cedar Subbasin
PRIORITY ACTIONS
 High - #4





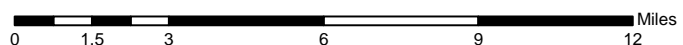


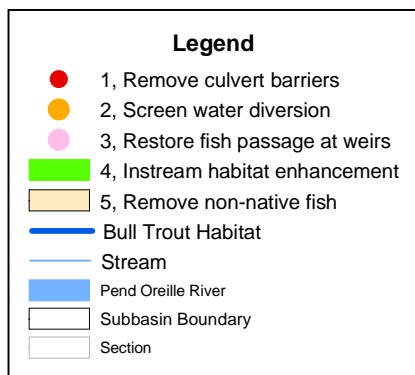
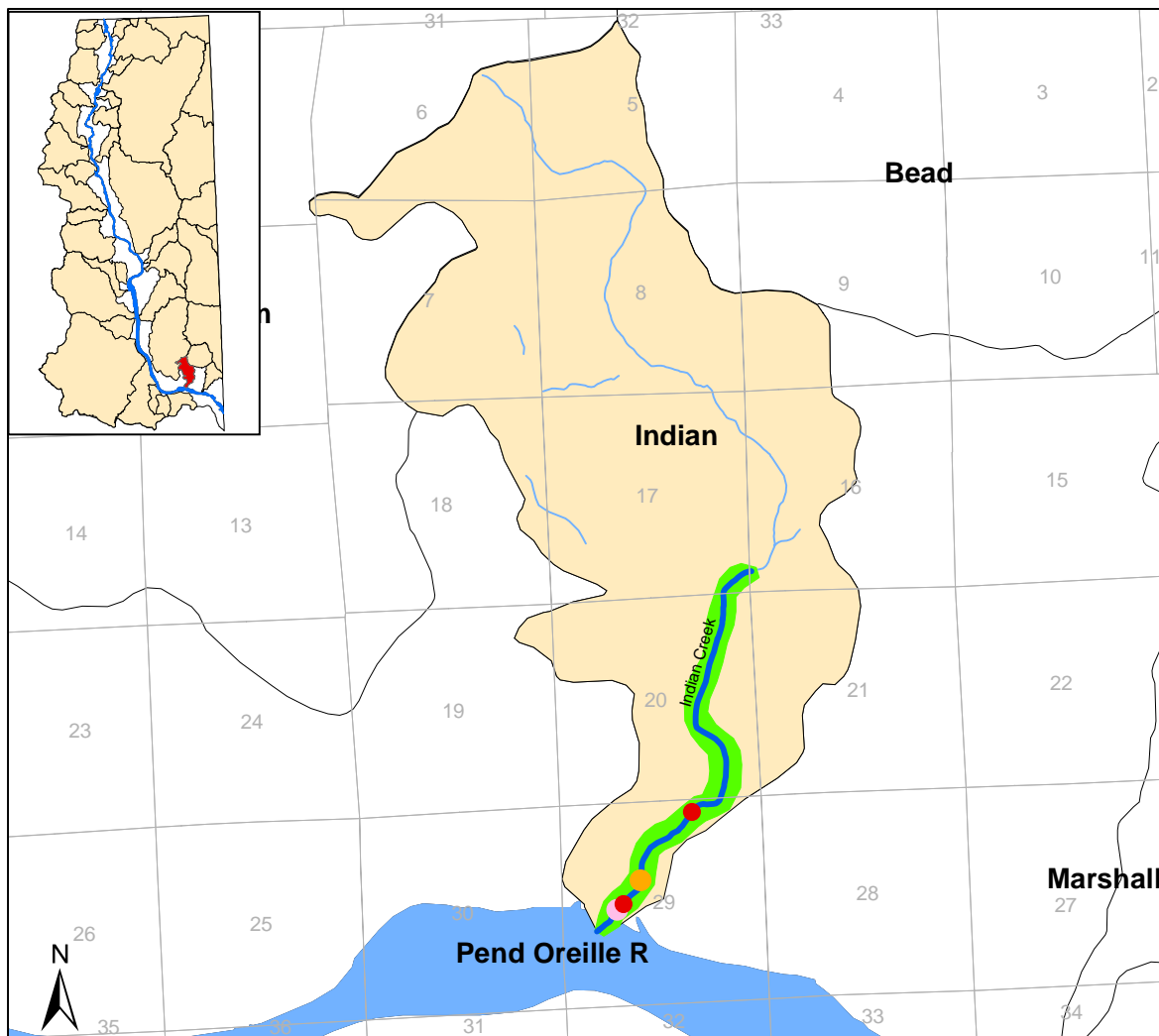


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Figure L
Sullivan Subbasin
PRIORITY ACTIONS

High - #7

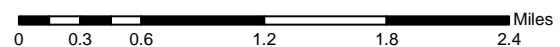




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Figure M
Indian Subbasin
PRIORITY ACTIONS

High - #8



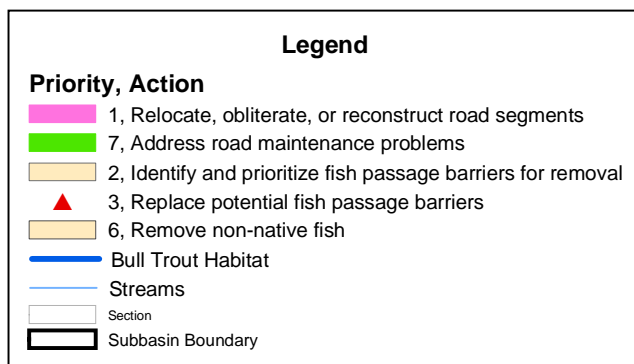
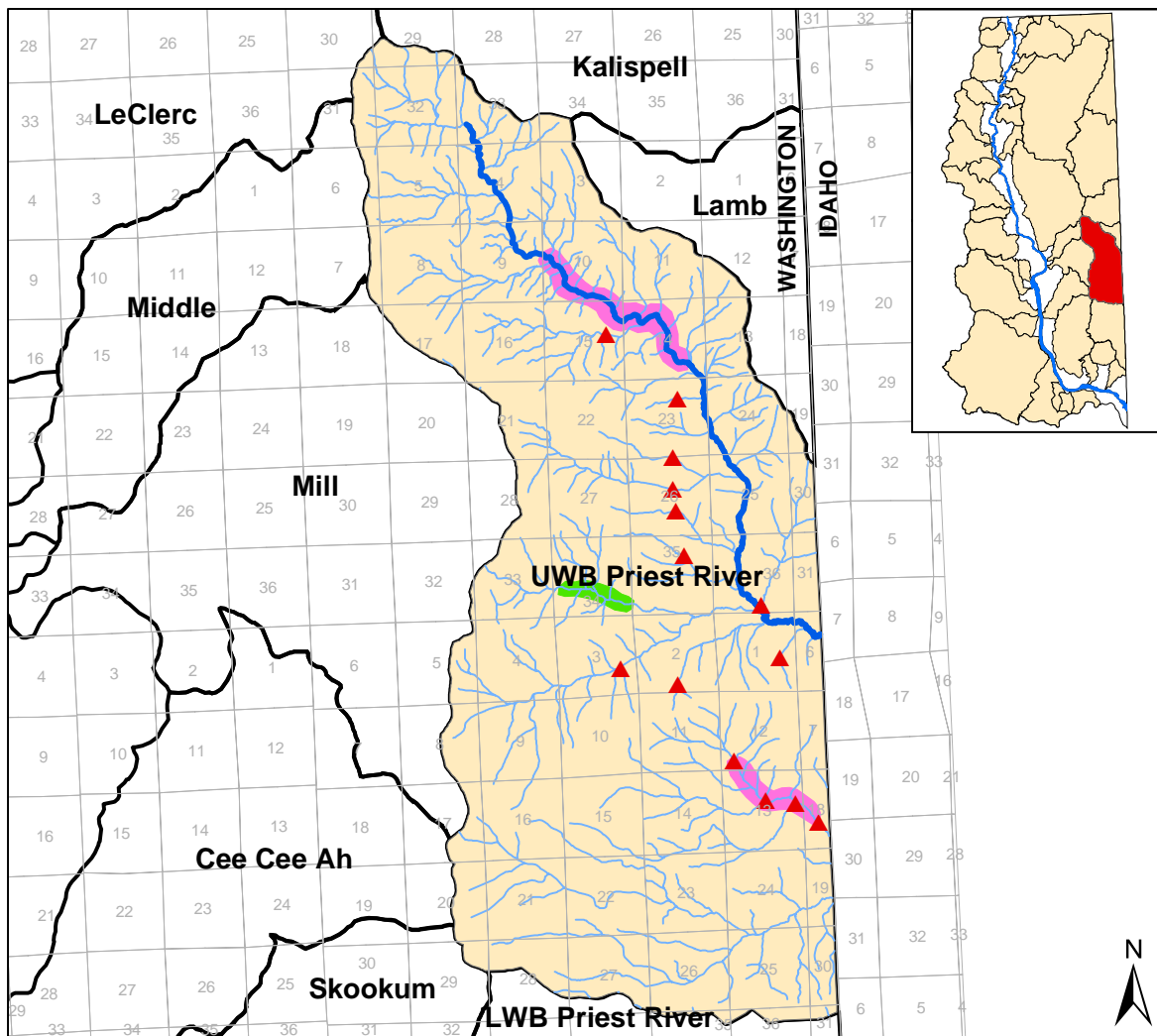


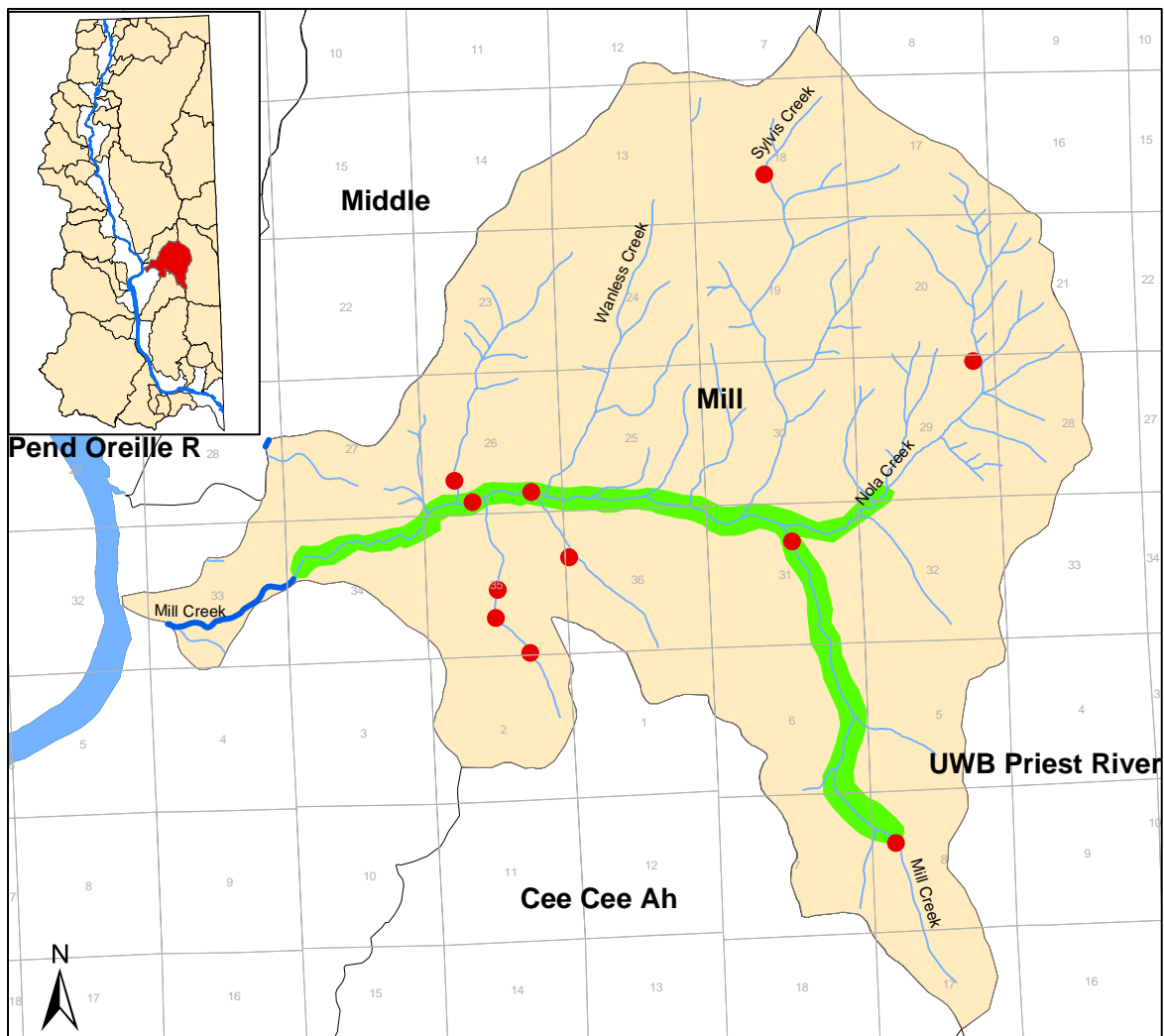
Figure N

Upper West Branch Priest River Subbasin PRIORITY ACTIONS

High - #9

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0 0.45 0.9 1.8 2.7 3.6 Miles

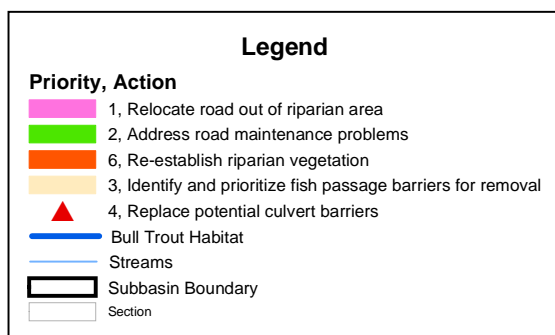
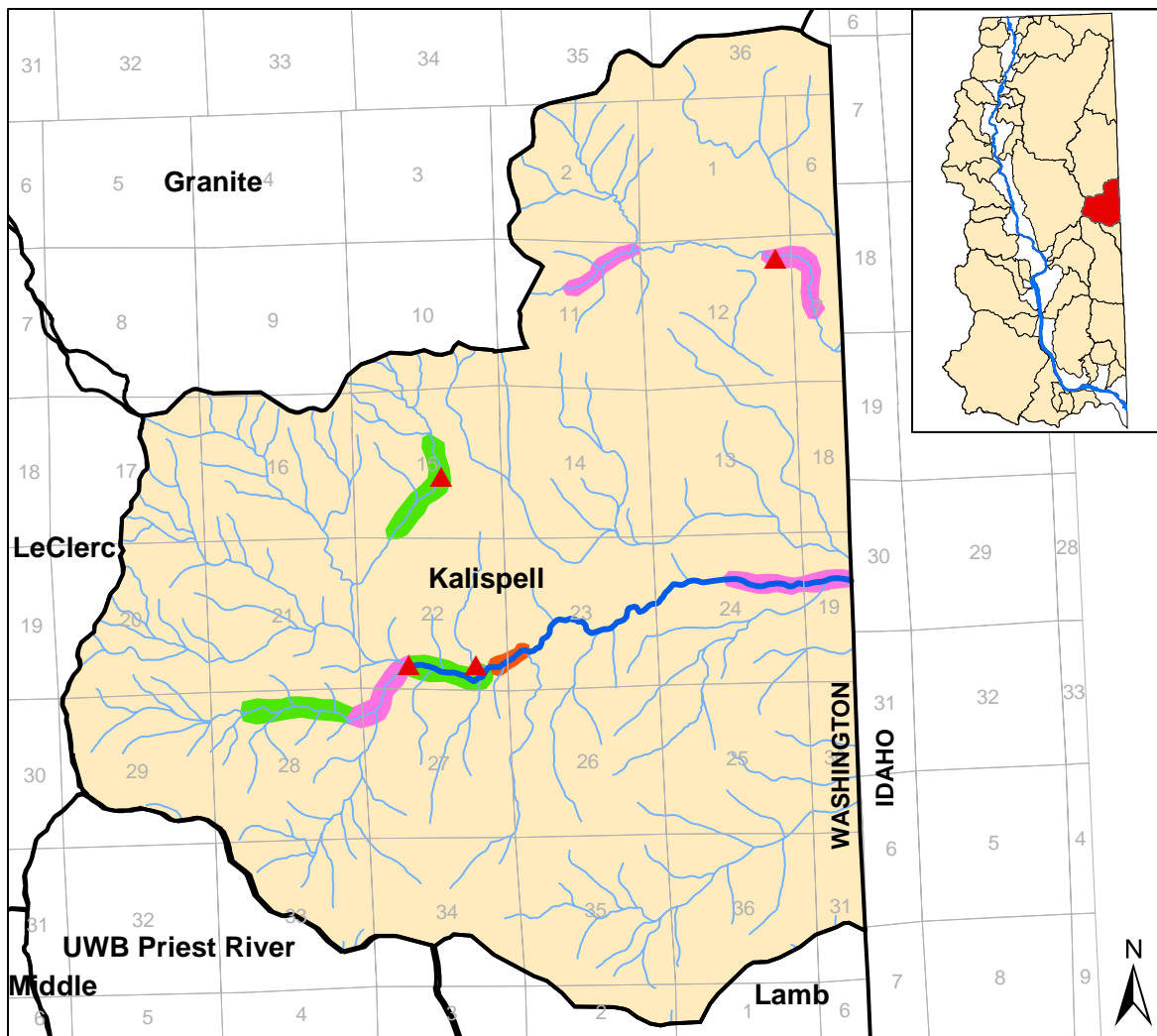
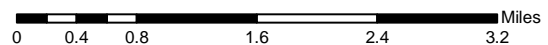


Figure P

Kalispell Subbasin

PRIORITY ACTIONS

High - #11



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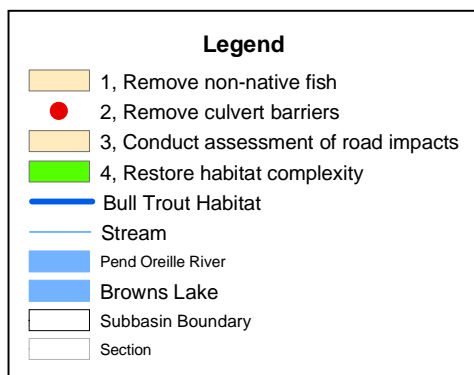
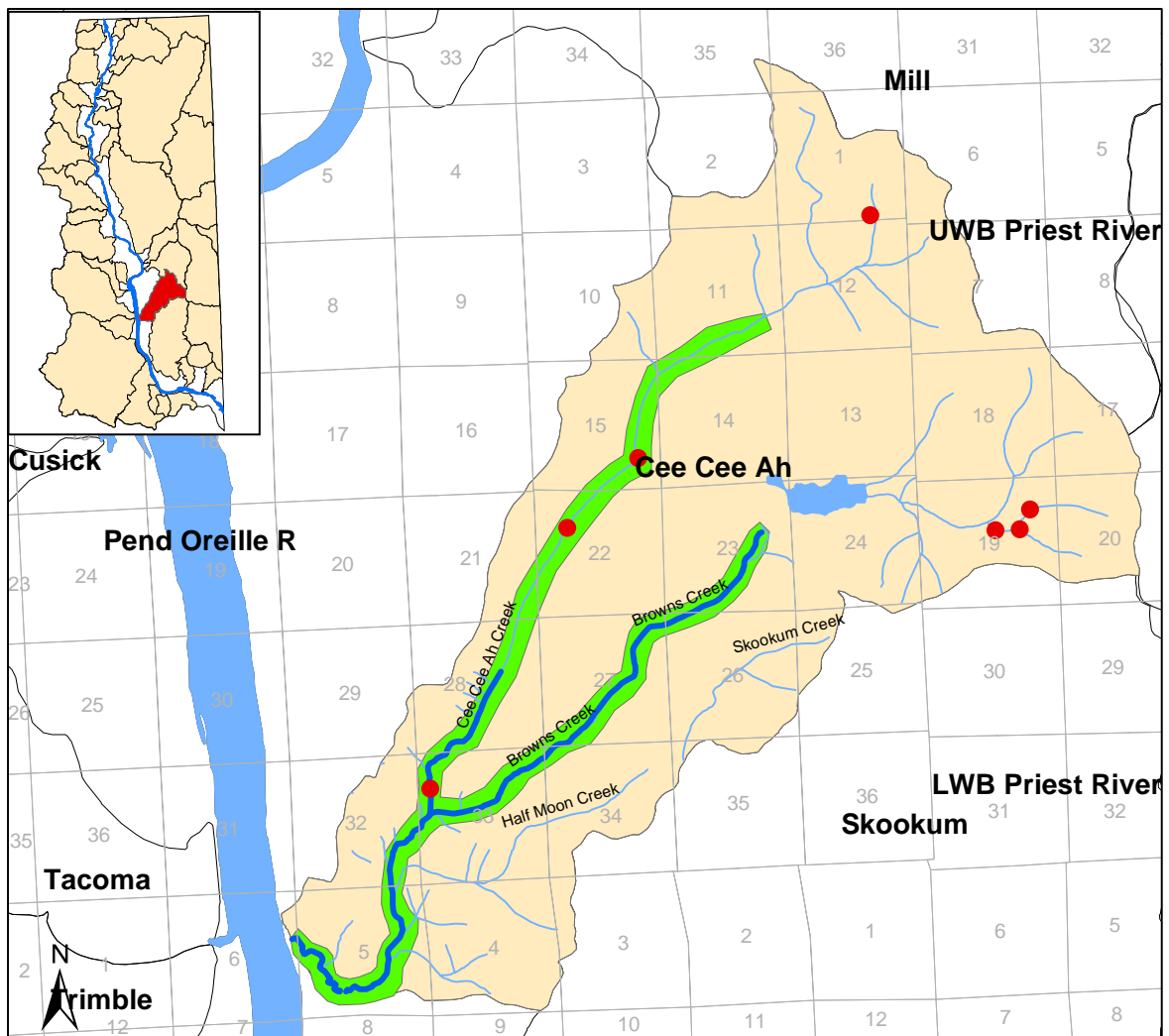
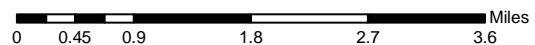
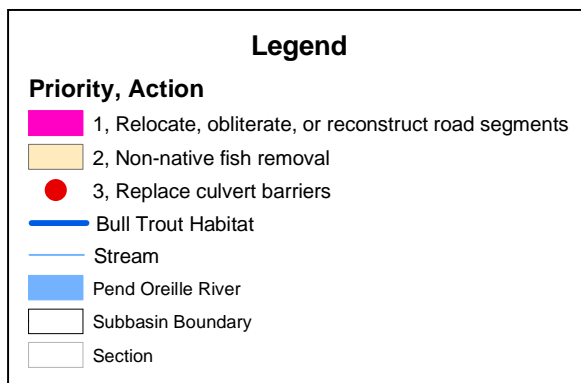
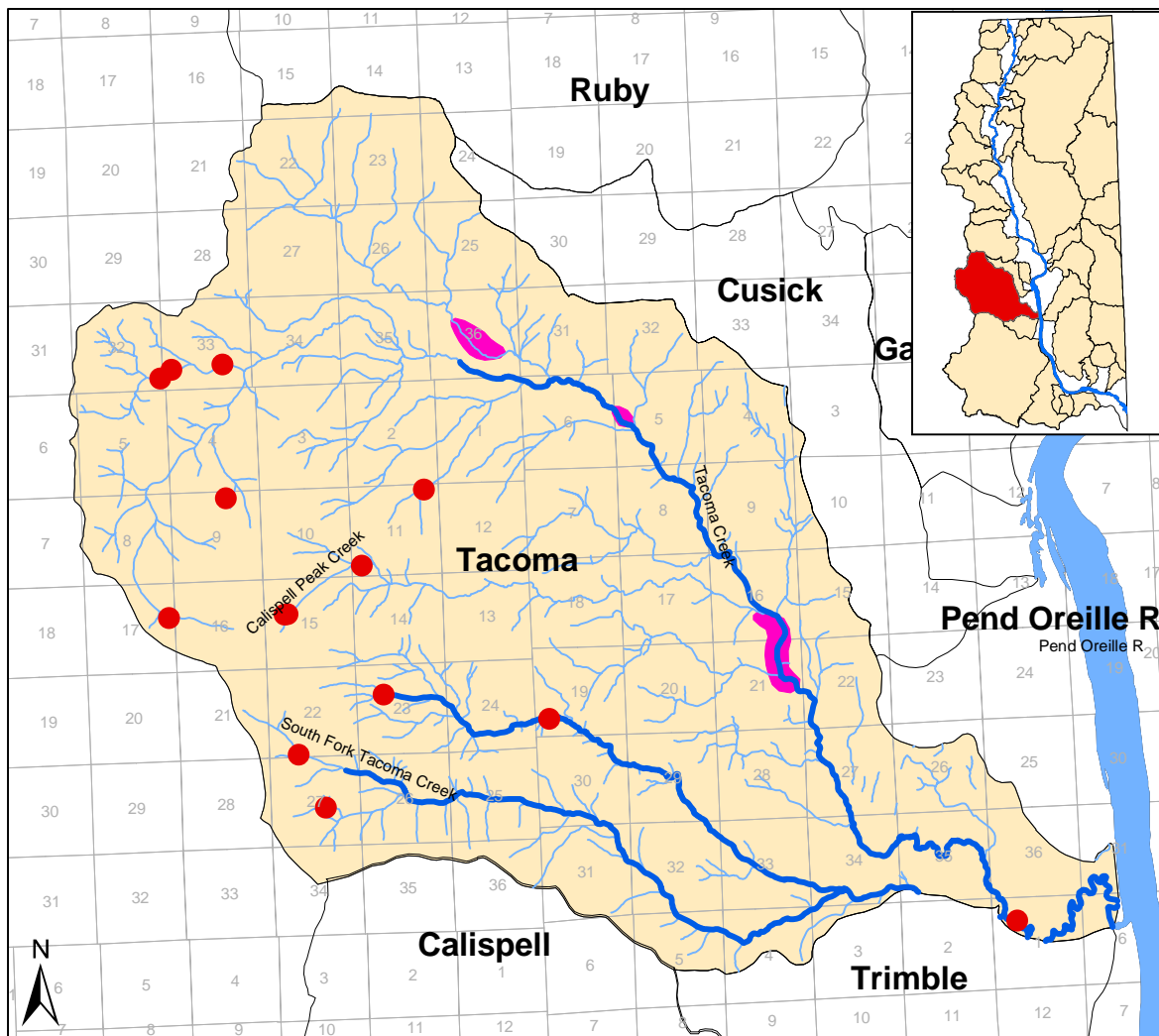


Figure Q
Cee Cee Ah Subbasin
PRIORITY ACTIONS
 Medium - #1



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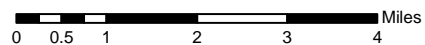
Prepared by S. Lembcke/WDFW for Pend Oreille Lead Entity; 030804

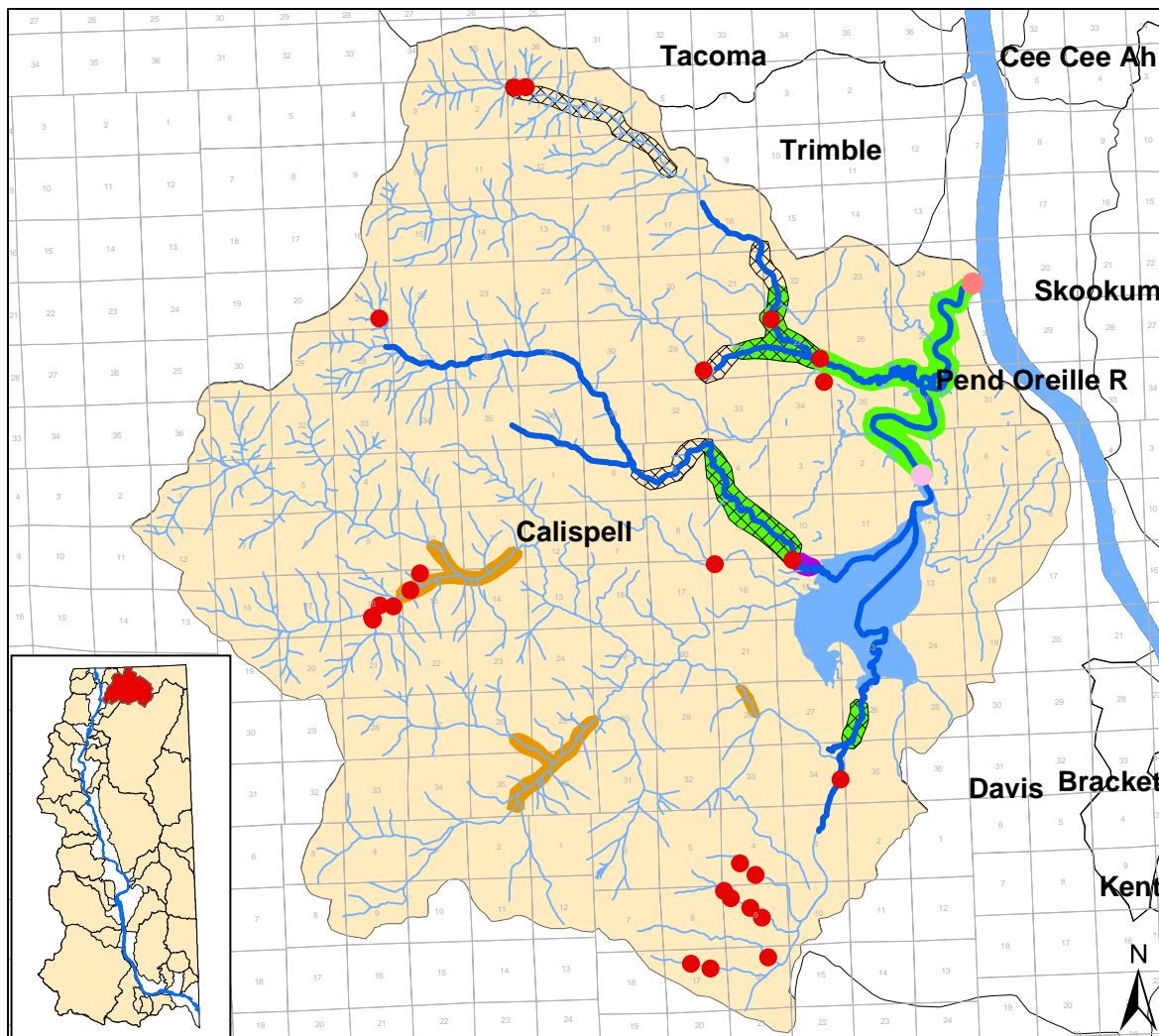
Figure R

Tacoma Subbasin

PRIORITY ACTIONS

Medium - #2





- Legend**
- Priority, Action**
- 1, Restore fish passage at Calispell Pumps
 - 2, Restore fish passage at Duck Club Dam
 - 4, Replace culvert barriers
 - 5, Riparian restoration
 - 6, Restore upland riparian vegetation
 - 7, Restore floodplain connectivity
 - 8, Restore instream habitat
 - 9, Conduct assessment of road impacts
 - Bull Trout Habitat
 - Stream
 - Calispell Lake
 - Pend Oreille River
 - Subbasin Boundary
 - Section

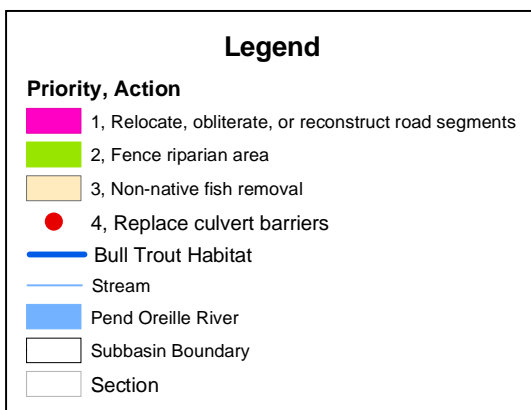
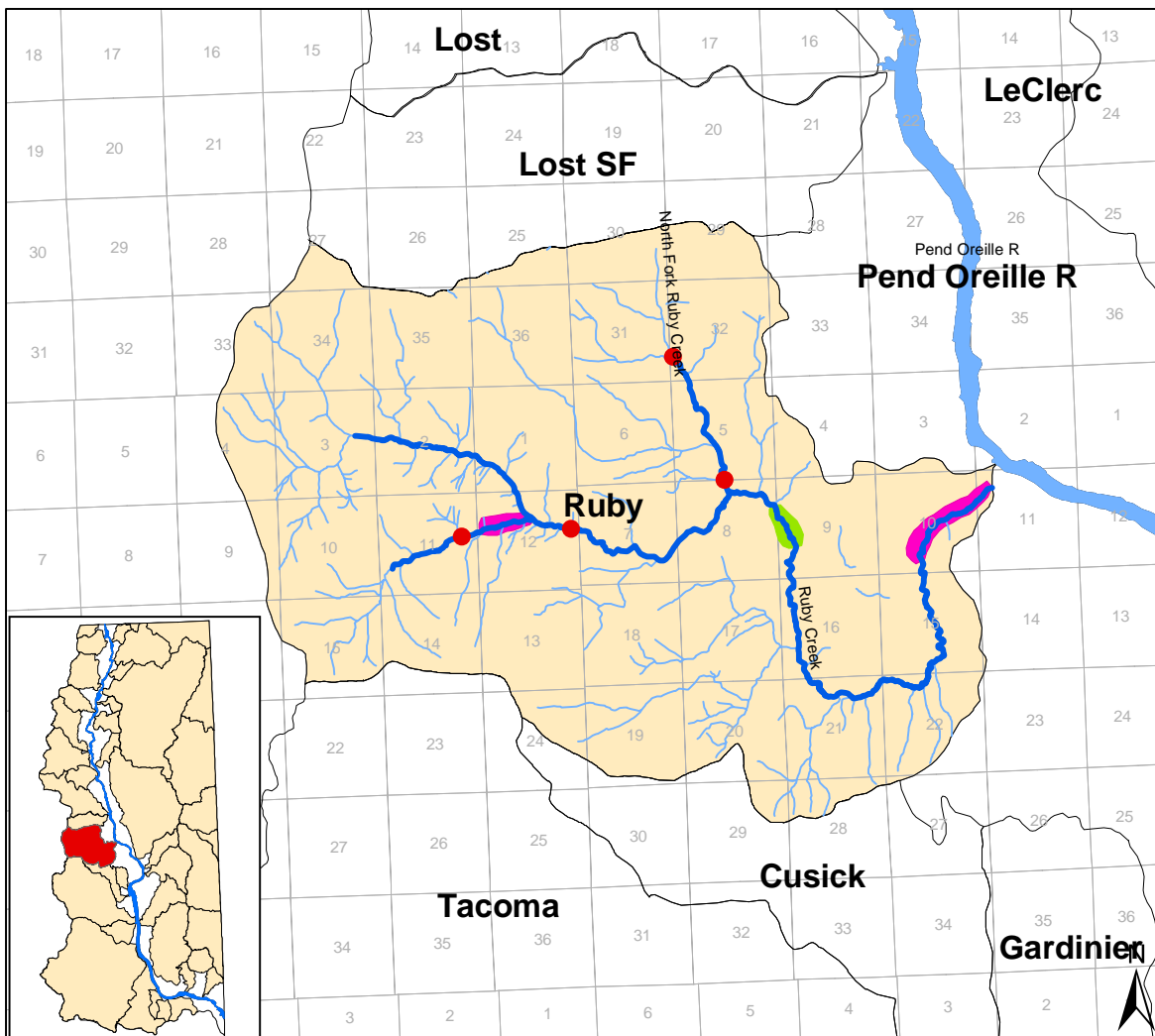
Prepared by S. Lemboke/WDFW for Pend Oreille Lead Entity; 030804

Figure S

Calispell Subbasin PRIORITY ACTIONS

Medium - #3

0 1 2 4 6 8 Miles



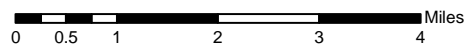
Prepared by S. Lembcke/WDFW for Pend Oreille Lead Entity; 030804

Figure T

Ruby Subbasin

PRIORITY ACTIONS

Medium - #4



PROJECT EVALUATION AND RANKING CRITERIA

The Salmon Recovery Act provides an annual opportunity for the Pend Oreille Lead Entity to submit a list of salmonid habitat protection and improvement projects to the Salmon Recovery Funding Board (SRFB) for funding consideration. The SRFB is authorized by the Washington Legislature to fund projects that are targeted at salmonid recovery activities and projects statewide.

Criteria were developed by the POLE to evaluate and rank projects for submittal to the SRFB. The criteria strive to integrate science with community goals and objectives. The POLE will use a two-step approach to evaluate and rank projects.

For the first step, the TAG will use a consensus-based approach to evaluate individual projects for benefit to salmonids and certainty of success based how the project meets the following criteria (see Appendix C for details). Project evaluations will be provided to the CAG to be considered during project ranking.

Benefit to Salmonids

- Does the project addresses high priority habitat features and/or watershed processes?
- Is the project located in a high priority subbasin?
- Has the project been identified through a documented habitat assessment?
- Does the project address multiple species or unique populations of salmonids essential for recovery or ESA-listed species or non-listed species primarily supported by natural spawning?
- Does the project address an important life history stage or habitat types?
- Does the project have a low cost relative to the predicted benefits?

Certainty of Success

- Is project scope appropriate to meet its goals and objectives?
- Is project consistent with proven scientific methods?
- Is project in correct sequence and independent of other actions being taken first?
- Does project address a high potential threat to salmonid habitat?
- Does the project clearly describe and fund stewardship of the area/facility for more than 10 years?
- Is the project landowner willing to have the project done on property?
- Can the project be successfully implemented or are there constraints which may limit project success?

In the second step, the CAG will use a consensus-based approach to rank each project based on evaluation provided by the TAG and the following criteria (see Appendix D for details).

- Is the project supported by the lead entity strategy?
- Is the project supported by the local community?

- Will the project help promote community support for the overall salmonid recovery effort in WRIA 62?
- Does the project applicant have the expertise and/or experience to successfully manage and implement the project?
- Is the project a justifiable use of public funds?

The POLE will submit the final prioritized project list to the SRFB for funding consideration. The SRFB will make its funding decision based on the evaluation of the project list and how well it addresses the priorities and actions identified in this strategy. A technical review of individual projects on the list will also be done by the SRFB to verify that the projects are technically sound.

COMMUNITY ISSUES

Landowner Support

The primary level of community support evaluation when considering any project or proposed action is landowner support. Each project must have full support of the landowner before being ranked by the CAG for submission to the SRFB in the Habitat Project list. A great deal of effort, by members of both Citizens and Technical advisory groups and Lead Entity staff, has and will continue to focus on acquiring this landowner commitment for priority actions during the development of each habitat project list in accordance with the technical guidance provided in this strategy.

Assessing Community Support and Concern

In addition to acquiring individual landowner support for specific projects, the level of community support and concern for the priority actions and areas was evaluated. Considering the level of community interest, issues and concerns for priority actions are often different depending on the subbasin for which those actions are proposed; CAG members identified the level community support for each action on the Priority Actions and Areas Table (Table 2). In the column labeled “Community Support” each action was given a value of: high, moderate, low, very low or more information required (MIR). These values were based on the effects each action may have on a number of socioeconomic concerns including but not limited to:

- Local industry and landowner ability to avoid undue economic hardship by sustaining adequate use of natural resources
- Continued outdoor recreation, hunting and fishing opportunities
- Continued resource-based economic activity (logging, farming and mining)
- Retaining the rural character of the land
- Preservation of flood control
- Further restricting access to public lands

Actions identified as having “high or moderate” community support are actively promoted to project sponsors and when sponsored are prioritized, by the CAG, both on their current level of community support and their ability to develop support for the salmonid recovery process in the future (see Appendix D).

Building Community Support

Ranking of community support at this time reflects the mass indifference or lack of knowledge with regard to native salmonid habitat improvement activities proposed within this strategy. The strategy for increasing the level of remaining actions identified as having lower community support include:

1. Continuing adult and youth education for high priority activities in high priority areas.
 - a. Actions with low community support will be prioritized for support building activities based on its subbasin priority, the rank of action within a priority subbasin, and the ability of the activity to achieve long and short term goals of the Strategy.
 - b. Prioritized low support actions will be promoted through continual educational events including guest speakers at local public and Lead Entity CAG meetings and field trips for project sponsors, landowners and citizens to past project sites of similar actions or subbasins.
2. The Lead Entity, when ever possible, in areas currently enjoying higher levels of community support will actively promote sponsorship of habitat improvement actions which are similar to those priority actions in areas with low community support including:
 - a. Pilot studies and priority actions located in adjacent subbasins which have similar limiting factors
 - b. Priority actions on public lands (i.e. with landowner support) within a low community support, high priority subbasin addressing limiting factors similar to those present on the privately owned reaches.

To achieve a higher level of understanding of the community support and concerns regarding priority actions in priority areas, the CAG will produce a survey for water front landowners with questions relating specifically to actions proposed in their subbasin. Results of this survey will refine the list of educational events and activities as well as identify additional areas of community support for priority habitat improvement activities to enhance the knowledge of the current community representatives.

SUMMARY

This revision of the Pend Oreille Lead Entity Salmonid Recovery Team Strategy includes answers to the SRFB request for a unified vision of future salmonid habitat conditions, short and long-term goals needed to reach that vision and a list of prioritized actions and areas for habitat improvement to guide future project sponsors landowners and SRFB funding in reaching each goal. This Strategy includes the most current scientific and community information available, describing the most efficient method of improving native salmonid habitat and will be implemented and updated continually to insure successful habitat restoration is achieved.

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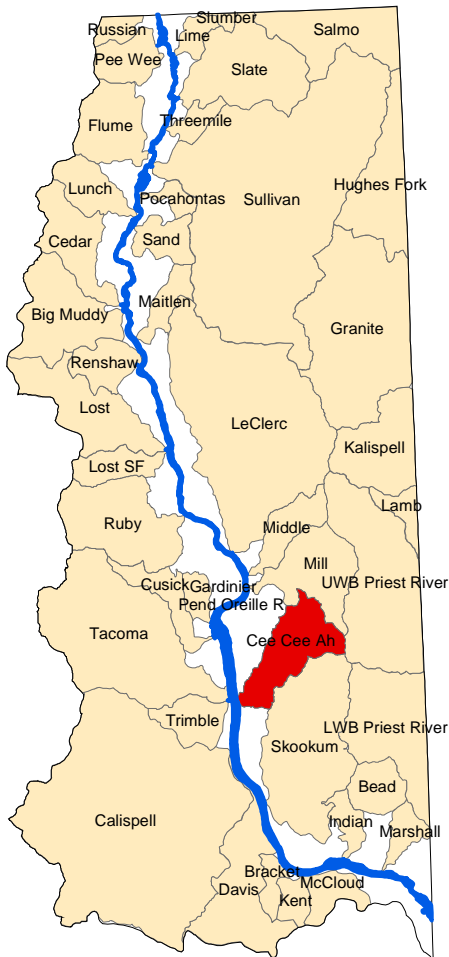
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APPENDIX A

Summary of SRFB Funded Projects in WRIA 62



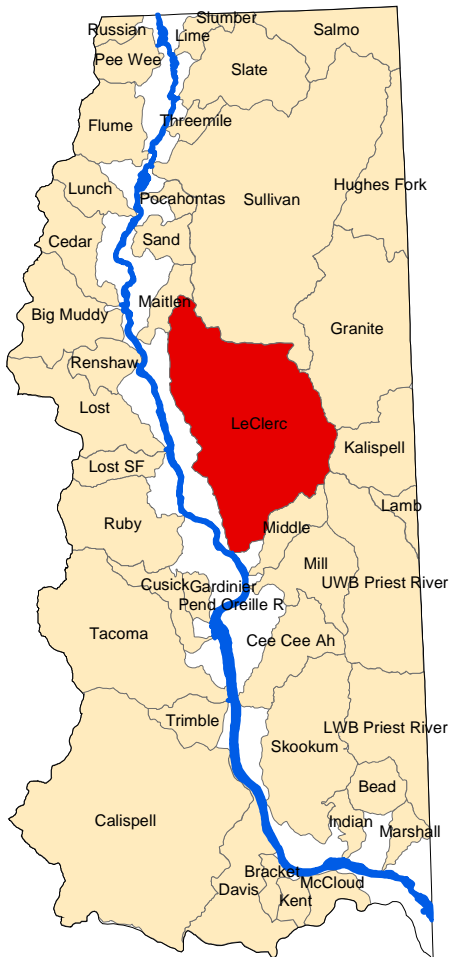
SRFB No.99-1484R Cee Cee Ah Creek Fish Passage Restoration

SRFB Funding: \$76,589
Local Match: \$76,823
Total Project Cost: \$152,412

Year Funded: 1999



This project, which was funded by the SRFB in 1999, restored fish passage to Cee Cee Ah Creek at the LeClerc Creek Road crossing. The existing double culvert was a velocity barrier for native fish migrating upstream at spring high flows. A 24' span, 32' wide, 6' high concrete modular arch was installed. Habitat enhancements in conjunction with the project included log and boulder placement for velocity refuge and cover. The project was a joint effort between Pend Oreille County, Pend Oreille Conservation District, and the Kalispel Tribe.



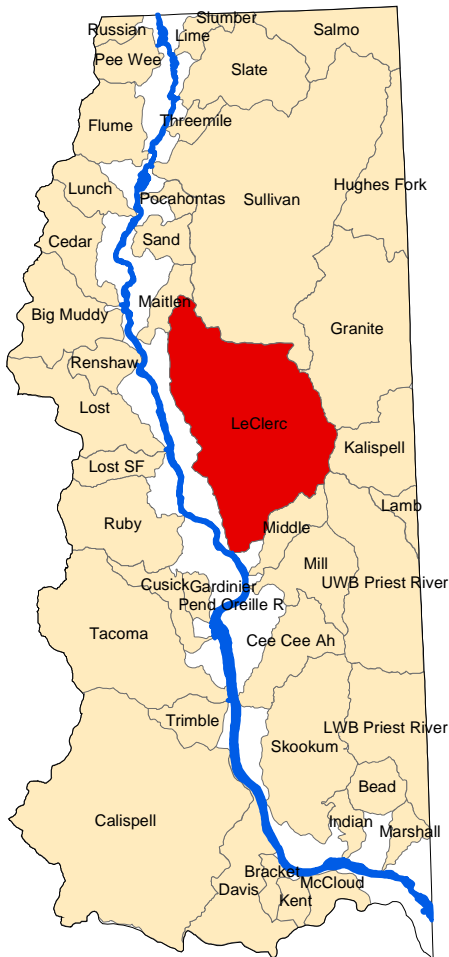
SRFB No. 00-1671R East Branch LeClerc Road Abandonment Project

SRFB Funding: \$202,000
Local Match: \$ 78,000
Total Project Cost: \$280,000

Year Funded: 2001



The East Branch LeClerc Road Abandonment Project was funded by the SRFB in 2001. The LeClerc Creek draining is a documented spawning and rearing stream for bull trout and cutthroat trout. It is one of few streams in the WRIA that supports bull trout and has potential for species recovery. In 1996, Stimson Lumber Co. completed a watershed assessment of this subbasin and identified approximately two miles of cost share road on U.S. Forest Service (USFS) land that contribute excessive sediment to the stream. In 1999, the USFS completed Phase I of the project by constructing a new road to divert traffic from the stream. To date, the Kalispel Tribe has successfully rehabilitated _____ miles of the abandoned road section. Original contours were reestablished and the road bed was revegetated. This included restoration of aquatic and terrestrial habitat as well as hydrology. This project is supported by the Pend Oreille Watershed Coordinating Committee, Pend Oreille County, Stimson Lumber Co., WDNr, WDOE, WDFW, USFWS, USFS, Pend Oreille PUD No. 1, and Seattle City Light. The project's estimated completion date is _____.



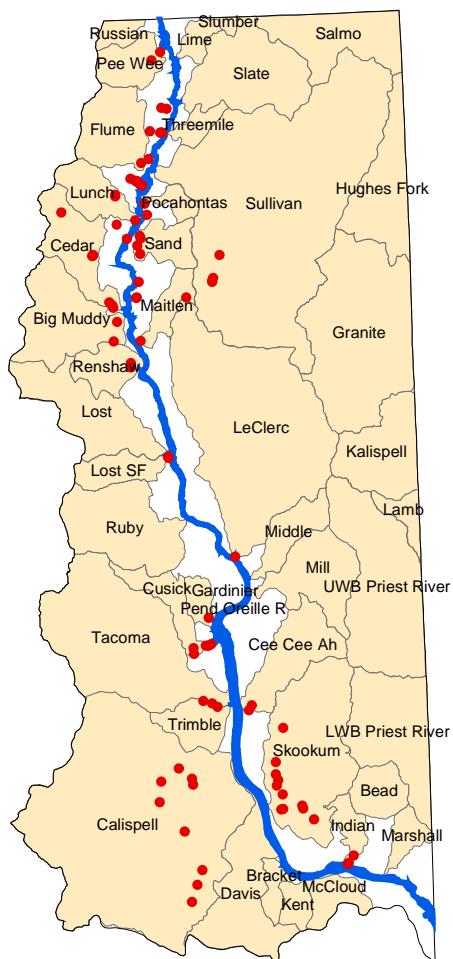
SRFB No. 00-1670R
**Middle Branch LeClerc Creek
 Bull Trout Project**

SRFB Funding:	\$39,993
Local Match:	\$12,720
Total Project Cost:	\$52,713

Year Funded: 2001



The Middle Branch LeClerc Creek Bull Trout Project was funded by the SRFB in 2001. LeClerc Creek, a tributary to Box Canyon Reservoir on the Pend Oreille River, is one of only a few streams where successful bull trout reproduction has been documented in WRIA 62. Lack of spawning and over-wintering habitat, high summer water temperatures, and competition from non-native eastern brook are limiting factors to the persistence of the species in the LeClerc subbasin. This project has replanted and fenced overgrazed riparian areas along the Middle Branch of LeClerc Creek improving spawning and overwintering habitat and improving water temperatures. In the summer of 2004, non-native eastern brook will be removed from the stream using antimycin, a chemical fish toxicant. Removal of this non-native fish species from the stream will reduce competition with bull trout.



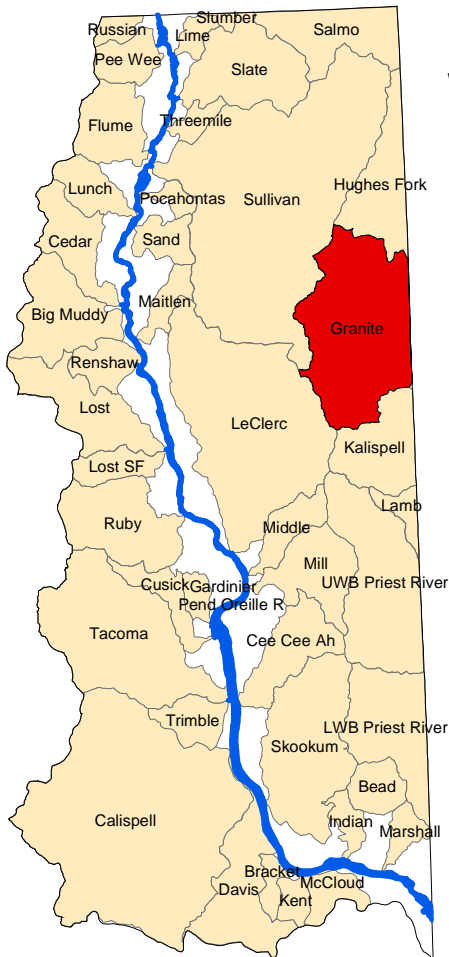
SRFB No. 01-1306N Pend Oreille Barrier Survey

SRFB Funding:	\$221,000
Local Match:	\$ 39,000
Total Project Cost:	\$260,000

Year Funded: 2002



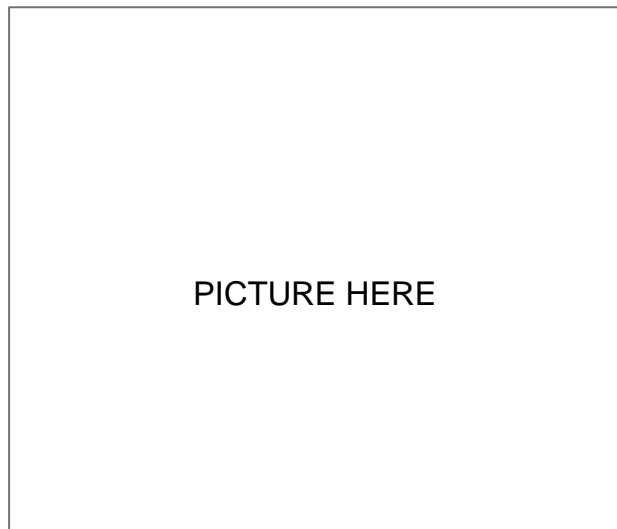
In 2003, the Pend Oreille Conservation District surveyed over 35 miles of stream in WRIA 62 and found 55 fish passage barriers. Beginning in 2004, the Kalispel Tribe, a project partner, will determine fish species composition and densities above and below these barriers. The barriers will then be prioritized for correction and new potential SRFB projects will be generated to remove these barriers and restore fish passage for threatened bull trout and other species. This was the first comprehensive fish passage barrier survey to be completed on private lands in WRIA 62 and is an integral part of restoring bull trout to the Pend Oreille watershed.



SRFB No.01-1405R Willow Creek Aquatic Restoration

SRFB Funding: \$189,772
Local Match: \$ 36,755
Total Project Cost: \$226,527

Year Funded: 2002



This project, which was funded by the SRFB in 2002, will improve salmonid habitat in the N.F. Granite Creek and Willow Creek drainages through decommissioning 8.4 miles of unstable U.S. Forest Service roads. Road problems include: a chronic source of sediment to the streams from mass wasting, undersized and plugged relief culverts, non-functioning ditchlines, and culverts blocking fish passage. Budget reductions have prevented adequate road maintenance. The N.F. Granite Creek drainage supports adfluvial bull trout and resident westslope cutthroat trout. Direct benefits to native salmonids from this project will be protection and enhancement of existing spawning/rearing habitat. Fish habitat will be improved by restoring habitat connectivity and by removing the failing road system that is delivering sediment to the channel.

APPENDIX B

RANKING CRITERIA FOR “HIGH” AND “MEDIUM” PRIORITY SUBBASINS

The following criteria were used to rank the “High” and “Medium” priority subbasins within WRIA 62. A score between 0 (worst) and 5 (best) was assigned to each subbasin based on how well it met the criteria. “High” and “Medium” priority subbasins were ranked separately.

1. Current of historic habitat utilization

As per Bull Trout Habitat Limiting Factors Report for WRIA 62 (WCC 2003), are bull trout currently or historically documented to be utilizing the subbasin for multiple life stages (i.e., spawning/rearing, overwintering, foraging, migration, thermal refuge)?

- 5 Bull trout currently use available habitat within the subbasin for three or more of the listed life stages
- 4 Bull trout currently use available habitat within the subbasin for at least two of the above life stages
- 3 Bull trout currently use available habitat within the subbasin for at least one of the above life stages
- 2 Bull trout historically use available habitat within the subbasin (documented reference)
- 1 Bull trout historically used available habitat within the subbasin (anecdotal reference)
- 0 No current of historic utilization of habitat within subbasin by bull trout

2. Sightings within last 10 years

As per the Bull Trout Habitat Limiting Factors Report for WRIA 62 (WCC 2003), within the last 10 years have bull trout been observed within the subbasin?

- 5 Bull trout recruitment, reproduction/spawning has occurred within the last 10 years
- 2 Individual bull trout have been observed (no evidence of recruitment, spawning, etc.)
- 0 No recent (i.e., within 10 years) observations of bull trout have been made

3. Water temperature

Based on the upper limits for life strategies and season of use by bull trout, such as incubation and overwintering habitats, the subbasin provides:

- 5 Temperatures seasonally suitable for all life stages of bull trout more than 80% of the year
- 4 Temperatures seasonally suitable for all life stages of bull trout for 60-80% of the year
- 3 Temperatures seasonally suitable for all life stages of bull trout for 40-60% of the year
- 2 Temperatures seasonally suitable for all life stages of bull trout for 20-40% of the year
- 1 Temperatures seasonally suitable for all life stages of bull trout for less than 20 % of the year

4. Amount of public vs. private ownership

Public land has a higher likelihood of protection and restoration than lands in private ownership. What percentage of subbasin is in public ownership (i.e., federal, state, tribal)?:

- 5 public ownership > 90%
- 4 public ownership 71-90%
- 3 public ownership 51-70%
- 2 public ownership 31-50%
- 1 public ownership 10-30%
- 0 public ownership < 10%

5. Current habitat conditions

Scores for current habitat condition (including stream gradient, substrate, channel complexity, and embeddedness levels) in each subbasin were based on TAG review of current documentation and group discussion. Best professional judgment of TAG member was then used to assign a score of 0-5 to each subbasin, with 0 being the worst and 5 the best.

6. Migration barriers

Scores were assigned to each subbasin based on the ratio of barriers to river mile of designated bull trout habitat (per WCC 2003). In subbasins where a barrier assessment has not been conducted or current barrier status is unknown, a score of “2” was assigned and will be reevaluated upon completion of a barrier inventory within the subbasin.

- 5 No barriers
- 4 0.01-0.25 barriers/mile of bull trout habitat
- 3 0.26-0.5 barriers/mile of bull trout habitat
- 2 0.51-1.0 barriers/mile of bull trout habitat
- 2 1.01-1.5 barriers/mile of bull trout habitat
- 1 >1.50 barriers/mile of bull trout habitat

7. Restoration potential

Scores were based on the level of difficulty and benefit of improving habitat within each subbasin to support a recovered bull trout population. The criteria for scoring restoration potential includes the overall current habitat characteristics (as in #5 above), as well as, current and/or historic information on bull trout distribution (as in #1 and #2 above). The ranking score ranged from 0 to 5, with 0 being the worst and 5 the best.

RESULTS OF PRIORITY SUBBASIN RANKING

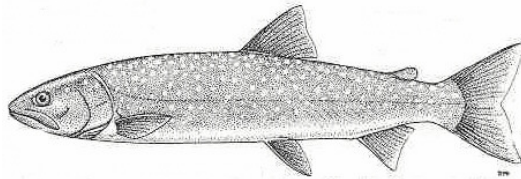
Each criteria is assigned a value of 0 to 5, with 0 being the worst and 5 the best.

HIGH PRIORITY SUBBASINS

Subbasin	Current or historic use	Sightings last 10 yrs	Water temp	Public vs. Private	Current habitat	Migration barriers	Restoration potential	Total Score	Rank
Granite	5	5	4	5	5	2 ⁵	5	31	1
South Fork Salmo	5	5	5	5	5	5	0 ⁶	30	2
Hughes Fork	5	5	4	5	4	2 ¹	4	29	3
Cedar	5	2	5	5	4	3	4	28	4
Slate ⁷	3	2	5	5	4	4	4	27	5
LeClerc	5	5	3	3	2	4	2	24	6
Sullivan	3	2	4	5	2	4	3	23	7
Indian	3	2	5	3	3	1	4	21	8
Upper West Branch	3	2	3	5	3	2 ¹	2	20	9
Mill	3	2	3 ⁸	2	2	5	2	19	10
Kalispell	2	0	3	5	3	2 ¹	2	17	11

MEDIUM PRIORITY SUBBASINS

Subbasin	Current or historic use	Sightings last 10 yrs	Water temp	Public vs. Private	Current habitat	Migration barriers	Restoration potential	Total Score	Rank
Cee Cee Ah	1	0	4	3	4	4	3	19	1
Tacoma	1	0	3	3	3	4	2	16	2
Calispell	1	0	3	3	2	4	1	14	3
Ruby	1	0	2	5	1	4	1	14	3



⁵ There is no current barrier information available; a mid-value of 2 was assigned and will be reevaluated upon completion of a barrier inventory.

⁶ There are no restoration activities currently required in this subbasin so a value of "0" is assigned.

⁷ Entire subbasin will be reevaluated after a site visit by the TAG to determine if a natural fish passage barrier exists at RM 0.5.

⁸ Current water temperature data is incomplete. Value will be reevaluated when new data becomes available.

APPENDIX C

Pend Oreille Lead Entity TAG TECHNICAL EVALUATION SRFB 5th Round Project Applications

Project Name: _____

Project Sponsor: _____

Using the form below, the TAG will use a consensus-based approach to evaluate each individual project application for benefit to native salmonids and certainty of success. The TAG will then assign an overall evaluation score of HIGH, MEDIUM, or LOW to each project for “benefit” and “certainty”. Project evaluation will be used by the CAG in the final project ranking process.

Category (descriptions below)	Evaluation (check one)			Explain Evaluation
	High	Medium	Low	
BENEFIT TO SALMONIDS				
Watershed processes and habitat features				
Areas and actions				
Scientific				
Species				
Life history				
Costs				
CERTAINTY OF SUCCESS				
Appropriate				
Approach				
Sequence				
Threat				
Stewardship				
Landowner				
Implementation				
OVERALL EVALUATION				
Benefit to salmonids				
Certainty of success				

CRITERIA DESCRIPTIONS BY CATEGORY

BENEFIT TO SALMONIDS

Category	Criteria	Evaluation
Watershed Processes and Habitat Features	Project addresses high priority habitat features and/or watershed processes that significantly protects or limits the salmonid productivity in the area. For acquisition projects only: More than 60% of the total project area is intact habitat, or if less than 60%, project must be a combination that includes habitat restoration. For assessment projects only: The project is crucial to understanding watershed processes, is directly relevant to project development or sequencing, and will clearly lead to new projects in high priority subbasins	HIGH
	Project may not address the most important limiting factor but will improve habitat conditions. For acquisition projects only: 40-60% of the total project area is intact habitat, or if less than 40-60%, project must be a combination that includes restoration. For assessment projects only: The project will lead to new projects in moderate priority subbasins and is independent of other key conditions being addressed first.	MEDIUM
	Project will not address an important habitat condition in the area	LOW
Areas and Actions	Project will address a high priority action in a high priority subbasin. For assessment projects only: The project will fill an important data gap in a high priority subbasin.	HIGH
	Project may be an important action but in a medium priority subbasin. For assessment projects only: The project fills an important data gap, but is in a medium priority subbasin.	MEDIUM
	Project addresses a lower priority action or will occur in a low priority subbasin.	LOW
Scientific	Project is identified through a documented habitat assessment or Limiting Factors Report.	HIGH
	Project is identified through a documented habitat assessment or scientific opinion.	MEDIUM
	Project is unclear or lacks scientific information about the problem being addressed.	LOW
Species	Project addresses multiple species or unique populations of salmonids essential for recovery or ESA-listed fish species. Fish use has been documented.	HIGH
	Project addresses a moderate number of species or unique populations of salmonids essential for recovery or ESA-listed fish species. Fish use has been documented.	MEDIUM
	Project addresses a single species of a lower priority. Fish use may have not been documented.	LOW
Life History	Project addresses an important life history stage or habitat type that limits the productivity of the salmonid species in the area and/or project addresses multiple life-history requirements.	HIGH
	Project addresses fewer life history stages or habitat types that limits the productivity of the salmonid species in the area and/or partially addresses fewer life history requirements.	MEDIUM
	Project is unclear about the salmonid life history being addressed.	LOW
Costs	Project has a low cost relative to the predicted benefits for the project type in that location.	HIGH
	Project has a reasonable cost relative to the predicted benefits for the project type in that location.	MEDIUM
	Project has a high cost relative to the predicted benefits for that particular project type in that location.	LOW

CERTAINTY OF SUCCESS

Category	Criteria	Evaluation
Appropriate	Project scope is appropriate to meet its goals and objectives. For assessment projects only: Assessment methodology will effectively address an information/data gap or lead to effective implementation of prioritized projects within 1-2 years on completion.	HIGH
	Project scope is moderately appropriate to meet its goals and objectives. For assessment projects only: Assessment method will effectively address an information/data gap or lead to effective implementation of prioritized projects within 3-5 years on completion.	MEDIUM
	Project scope is unclear as to how the goals and objectives will be met.	LOW
Approach	Project is consistent with proven scientific methods.	HIGH
	Project uses scientific methods that may have been tested, but the results are incomplete.	MEDIUM
	Project uses methods that have not been tested or proven to be effective in past uses.	LOW
Sequence	Project is in the correct sequence and is independent of other actions being taken first.	HIGH
	Project is dependent on other actions being taken first that are outside the scope of this project.	MEDIUM
	Project may be in the wrong sequence with other actions.	LOW
Threat	Project addresses a high potential threat to salmonid habitat.	HIGH
	Project addresses a moderate threat to salmonid habitat.	MEDIUM
	Project addresses a low potential for a threat to salmonid habitat.	LOW
Stewardship	Project clearly describes and funds stewardship of the area or facility for more than 10 years.	HIGH
	Project clearly describes, but does not fund, stewardship of the area or facility for more than 10 years.	MEDIUM
	Project does not describe or fund stewardship of the area or facility.	LOW
Landowner	Landowners are willing to have work done.	HIGH
	Landowners may have been contacted and are likely to allow work to be done.	MEDIUM
	Landowner willingness to have work done is unknown.	LOW
Implementation	Project actions are scheduled, funded, and ready to take place and have few or no known constraints to successful implementation as well as other projects that may result from this project.	HIGH
	Project has few or no known constraints to successful implementation as well as other projects that may result from this project	MEDIUM
	Project actions are unscheduled, unfunded, and not ready to take place and has several constraints to successful implementation.	LOW

APPENDIX D

Pend Oreille Lead Entity CAG PROJECT RANKING CRITERIA SRFB 5th Round Project Applications

Project Name: _____

Project Sponsor: _____

The CAG will together, utilizing a consensus-based approach as described in the team bylaws, rank each project application based on the criteria below. Total scores for each project will be tabulated by the Pend Oreille Lead Entity to determine the ranked order of each individual project on the project list. If two projects receive the same ranking, the CAG will use a consensus-based approach to determine which project should receive a higher ranking. **This project must have full landowner before being ranked by the CAG for submission to the SRFB in the Habitat Project list.**

Criteria	Ranking	Score
Using the TAG evaluation of the project rate “benefit to salmonids”	High.....Medium.....Low 10 9 8 7 6 5 4 3 2 1 0	
Using the TAG evaluation of the project, rate “certainty of success”	High.....Medium.....Low 10 9 8 7 6 5 4 3 2 1 0	
The project is supported by the lead entity strategy	High.....Medium.....Low 10 9 8 7 6 5 4 3 2 1 0	
The project is supported by the local community	High.....Medium.....Low 10 9 8 7 6 5 4 3 2 1 0	
The project will help promote community support for the overall salmonid recovery effort underway in WRIA 62	High.....Medium.....Low 10 9 8 7 6 5 4 3 2 1 0	
The project applicant has the expertise and/or experience to successfully manage and implement the project	High.....Medium.....Low 10 9 8 7 6 5 4 3 2 1 0	
The project is a justifiable use of public funds	High.....Medium.....Low 10 9 8 7 6 5 4 3 2 1 0	
TOTAL SCORE Total possible points = 70		

Comments: